MASS. HS1.2: H79

UMASS/AMHERST

312066 0282 3729 3

HOSPITAL REIMBURSEMENT AND ACCESS TO CARE: CHAPTER 372 AND BEYOND

GOVERNMENT DOCUMENTS COLLECTION

JUL 26 1990

University of Massachusetts
Depository Copy



Executive Office of Human Services
Commonwealth of Massachusetts

Hospital Reimbursement and Access to Care:

Chapter 372 and Beyond

The Commonwealth of Massachusetts
Executive Office of Human Services
One Ashburton Place
Boston, MA 02108

Michael S. Dukakis
Governor

Philip W. Johnston
Secretary

PUBLICATION: #14,452-242-200-5-21-86-CR
Approved by Daniel Carter, State Purchasing Agent

Acknowledgements

For the provision of the basic data which made this report possible, we want to thank Mary Lou Sullivan, Janet Munroe, and Gary Abrahams from the Department of Public Welfare; Paul Swoboda, David Veroff and Wendy Munroe from the Rate Setting Commission; Daniel Friedman and Mark Russionello from Blue Cross and Blue Shield and a variety of staff in hospital fiscal offices for interpretation and clarification of data elements.

Richard Kronick wrote Chapters 2, 3, 4 and Appendices A through G. Karen Smith wrote Chapter 1, had primary responsibility for the Executive Summary and Chapter 5, and was responsible for coordinating production of this report. Paul Swoboda wrote Appendix H, provided extensive comments on Chapter 2, and provided valuable insights on the Massachusetts hospital reimbursement system. We would like to thank Marie Baker, Julie Gioiosa, Robin Martin and especially, Rita Crognale for production support under sometimes trying circumstances. This report was written under the supervision of Mark Coven, Assistant Secretary for Health and Welfare, who provided invaluable organizational and intellectual support. We are grateful to a long list of people, who bear no responsibility for this product, for their service in the cause of improving access to the health care system for the poor in Massachusetts, and for the knowledge they have contributed, indirectly, to this report. This list includes: John Chapman, Daniel Friedman, Barbara Gold, Paula Griswold, Jim Hooley, Robert Marra, Karen Quigley, Larry Seck, Katherine Swartz, Deborah Thompson,

and Steven Tringale.

Finally, the first author is deeply grateful to Amy Bridges, who edited earlier drafts of this report and provided valuable guidance throughout.

TABLE OF CONTENTS

		Page
Executive Summary		i
Chapter One	An Introduction to the Access Issue and the Hospital Payment System in Massachusetts	1
Chapter Two	Chapter 372 and the Changing Hospital Financial Environment	9
2.1	Chapter 372 and Rates of Payment for the Uninsured Poor	
2.2	Chapter 372 and Rates of Payment for Medicaid Recipients	
2.3	Chapter 372 and Changing Hospital Environment	
Chapter Three	Assessing the Impact of Chapter 372 on the Poor	37
3.1	Potential Methods to Affect Access for the Uninsured Poor and Medicaid Recipients	
3.2	Effects of Chapter 372 on Hospital Practices	
3.3	Effects of Chapter 372 on Utilization of Hospital Services by the Uninsured Poor	
3.4	Effects of Chapter 372 on Utilization of Services by Medicaid Recipients	
3.5	Summary of the Effects of Chapter 372 on Access	
Chapter Four	Health Care for the Uninsured: A Description of the Status Quo	74
4.1	Who Are the Uninsured in Massachusetts?	
4.2	Insurance Status and Site of Hospitalization	
4.3	Insurance Status and Rates of Hospitalization	
4.4	Insurance Status and Outpatient Hospital Utilization Rates	
4.5	Conclusion	
Chapter Five	Options in Financing: Health Care for the Uninsured	134
5.1	Framing the Issues	
5.2	Financing Options	
Conclusion		154
Bibliography		156
Appendix A	Review of Credit and Collection Policies	158
Appendix B	Bad Debt and Free Care: Data and Methods	162
Appendix C	Medicaid Caseload Data and Adjustments	170
Appendix D	Medicaid Utilization Data	175
Appendix E	Hospital Discharge Data	187
Appendix F	Market Share for Boston City Hospital Using Unadjusted Data	199
Appendix G	Market Shares, By Payor, For All Hospitals	201
Appendix H	An Overview of the Massachusetts Hospital Payment System	208


Digitized by the Internet Archive
in 2013

http://archive.org/details/hospitalreimburs00mass

List of Tables and Figures

		Page
Table 3-1	Summary of Reviews of Hospital Credit and Collection Policies	44
Figure 3-1	Bad Debt and Free Care as a % of Total Hospital Costs 1976-1984	55
Figure 3-2	Bad Debt and Free Care by Hospital Type 1976-1984	57
Figure 3-3	Medicaid Caseload 1981-1984	60
Figure 3-4	No. Unemployed Persons in Massachusetts 1980-1984	62
Table 3-2	Change in Medicaid Caseload	67
Table 3-3	Change in Days of Care Utilized by Medicaid Recipients 1981-1984	70
Table 4-1	Total Costs, Bad Debt/Free Care Costs, and Service to Medicaid Recipients by Municipal Hospital Status	85
Table 4-2	Hospital Bad Debt and Free Care by HSA Subarea 1980-1984	86
Table 4-3a-b	Hypothetical Distributions of Site of Hospital Care	90
Table 4-4	Hypothetical Market Shares for Two Hospitals	93
Table 4-5	Average Market Shares, By Payor, for Two Hypothetical Hospitals	96
Table 4-6a	Distribution of Site of Hospital Care for Residents of the South End (Boston)	100

Table 4-6b	Distribution of Site of Hospital Care for Residents of Downtown Worcester	100
Table 4-6c	Distribution of Site of Hospital Care for Residents of Lawrence	101
Table 4-6d	Distribution of Site of Hospital Care for Residents of Arlington	101
Table 4-7a	Market Shares for Boston City Hospital	104
Table 4-7b	Market Shares for Cambridge City Hospital	104
Table 4-7c	Market Shares for Worcester City Hospital	105
Table 4-7d	Market Shares for Inner City "Starship" Referral Hospital	107
Table 4-7e	Market Shares for Upscale Minor Teaching Hospital	107
Table 4-8	Probability of Hospitalization Among the Sick by Insurance Status for the Poor and Near Poor, 1977	113
Table 4-9	Probability of Hospitalization Among the Under-65 Population in the Northeast, by Insurance Status	116
Table 4-10	Elective Admissions by Insurance Status, FY' 82	123
Table 4-11	Outpatient Costs as a Percentage of Total Hospital Costs by Insurance Status	127

Executive Summary

The dominant theme in health care policy for the last decade has been health care cost containment; the emerging theme for the next decade is ensuring access to care, particularly for the uninsured poor. The uninsured poor, in Massachusetts and in the rest of the nation, currently rely heavily on hospitals for their health care services. Recent successes on the cost containment agenda, however, threaten the viability of this system. First, the proliferation of managed care insurance plans (such as HMOs), sensitive to the prices hospitals and other providers charge, is causing hospitals to be more sensitive about their level of charges than they were in the past. Thus, the traditional method of cross-subsidy, in which those patients who do pay are charged a premium to cover those patients who do not pay, is becoming less viable as a financing mechanism. Second, and most importantly, the major focus of the burgeoning managed care industry is on moving care out of the hospital and into other settings. In an environment in which hospital payments are shrinking as a proportion of total health care spending, financing and delivering health care for the uninsured poor primarily through the hospital system makes even less sense than it did in the past.

Concerns about access to health care for the poor were heightened in Massachusetts in 1982 by the passage of Chapter 372, an innovative all-payor hospital financing system. There were some reports of increased numbers of economic transfers,

advocates for poor people were becoming more vocal in publicizing the plight of low income uninsured persons, and the state become increasingly concerned about its capacity to care for poor people as the federal government abdicated responsibility to state and local governments. In 1983, former Secretary of Human Services, Manuel Carballo asked his staff to begin studying this issue. In 1985, Secretary Philip W. Johnston chose to pursue the problem further and requested the Office of Health Policy within the Executive Office of Human Services to prepare a report on the subject for health policy makers across the state.

The first part of this report (Chapters 2 and 3) describes the effect of Chapter 372 on the financial incentives hospitals face when deciding whether or not to admit an uninsured person or Medicaid recipient, and provides a preliminary assessment of the response to these incentives by the hospital industry. Analysis of the financial incentives created by Chapter 372 demonstrates that starting in October, 1984, the system should have increased the willingness of hospitals to serve both the uninsured and Medicaid recipients.

The key findings are:

- The implementation of Section 51 in October, 1984 reduced the disincentives by providing private sector payment for virtually all bad debt and free care not paid by Medicare and Medicaid.
- The disincentives to serve the uninsured poor people during the first years of Chapter 372 were similar to the disincentives in the pre-Chapter 372 system.

- The passage of Chapter 574 of the Acts of 1985 reduced the disincentives even further by creating a statewide pool for uncompensated care. This is the only hospital reimbursement system in the country which guarantees hospitals that they will receive payment in full for bad debt and free care and provides that an individual hospital will not be forced to raise its prices in order to receive payment for increased levels of service to the poor.
- Small reductions in Medicaid expenditures during FY '83-'85, consistent with planned savings, and corrective legislation for the payment formula maintained the status quo for Medicaid recipients.
- In FY'85 and beyond, a change in the Medicaid payment system makes hospitals 'payor-blind'; changes in the volume of services delivered to Medicaid recipients will have virtually the same payment implications as changes in the volume of services delivered to patients insured by Blue Cross, thus improving access for Medicaid recipients.
- Both the Medicaid payment system and private sector payments for uncompensated care have greatly strengthened the financial positions of hospitals that serve disproportionate numbers of the poor.

Although the payment system represents a major factor in hospitals' decision-making process and the overall financial environment, an empirical analysis of the actual impact of

Chapter 372 on access to health is necessary. We examined the potential strategies a hospital might employ to restrict access to care for the uninsured poor and Medicaid recipients and the effects of such strategies. Changes in official policies on admissions and credit and collection policies, as well as reports from hospital staff on economic transfers raise cause for concern. We examined changes in utilization of services by the uninsured poor and Medicaid recipients as a proxy for measuring changes in access and found that:

- Overall utilization per capita and the distribution of that utilization across public and private hospitals for the uninsured poor did not deteriorate, and may have increased, during the first two years of Chapter 372.
- The inpatient utilization per capita of hospital services by Medicaid recipients remained approximately the same for the first two years of Chapter 372.
- The aggregate data does not contradict the anecdotal evidence of increased "dumping". The main conclusion we should draw is that there was no change in access large enough to affect aggregate utilization patterns during the first two years of Chapter 372.
- Data are presently available only through FY'84; the major positive effects of Chapter 372 are expected in FY'85 and following. It is important to monitor the effect of the hospital environment on access.

The second part of this report (Chapters 4 and 5) describes

the amount and type of health care received by the uninsured, and argues that health care can be more efficiently and cost-effectively delivered to the uninsured through an insurance based mechanism rather than the current charity care arrangments. The key findings are:

- Between 520,000 and 665,000 Massachusetts residents under 65 years of age are uninsured at any point in time. This represents 10% to 13% of the under-65 population.
- Among the uninsured, one-third are under 19 years of age; among uninsured adults, almost 60% are employed, 30% are outside of the labor force (students, housewives, or disabled), and only 13% are unemployed.
- Lack of insurance is strongly related to site of hospitalization. Controlling for age, location of residence, and hospital service utilized, the uninsured are much more likely than the insured to use those hospitals that serve the poor.
- Lack of insurance is strongly related to the amount of inpatient hospitalization: the uninsured are hospitalized between 60% and 70% as often as the insured. Both this fact and the relationship between insurance and site of hospitalization indicate that access to inpatient care for the uninsured is significantly worse than access for the insured.

- The uninsured use significantly more outpatient hospital services per capita than the privately insured.
- The combination of relatively high outpatient department use with relatively low inpatient use results in hospital costs for the uninsured that are as high or higher than the hospital costs for the insured.

The implications of these findings are critical to the development of policies and programs for the uninsured. If we can use the dollars currently spent on services for uninsured persons in more cost-effective ways, it should be possible to provide a greater volume of inpatient services and a more appropriate mix of primary care services without significant new expenditures in the health care system. In order to achieve such a change in patterns of utilization and expenditures, we need both an insurance mechanism and an enhanced delivery system.

Chapter 372 has protected, and can be expected to improve, access to hospital care for the uninsured poor. The success of Chapter 372 results largely from the support of a variety of interest groups--the Massachusetts Business Roundtable, the Massachusetts Hospital Association, the Massachusetts Medical Society, the Massachusetts Association of HMOs, major insurer groups, organized labor and the state. Chapter 372 sunsets in October, 1987, and a legislative study commission has begun the process for developing a successor health care financing system.

Massachusetts has an impressive record of caring for its poor populations, even during the past few years of dramatic federal cutbacks in health programs. The state has significantly expanded eligibility for its Medicaid program, has provided coverage for maternity related care to all pregnant women with incomes up to 185% of the poverty line, and is proposing to extend Medicaid coverage for up to a year for employment and training graduates who leave the caseload by finding a job that does not offer health insurance benefits. In addition, Massachusetts was the first state in the country to supplement federal Women, Infant and Children funds with state dollars.

Two primary questions are faced in setting future policy for financing and delivering care to the poor: how will funds be generated and how will they be spent? The final chapter of this report presents several responses to these questions. A review of initiatives across the country reveals that insurance based options are becoming the preferred alternative. Insurance options offer several advantages over the current charity care system.

If Massachusetts is serious about creating and implementing a health care financing and payment system that adequately safeguards consumers while controlling costs, it should expand insurance coverage to as much of the state population as possible. We know that uninsured people are using services inefficiently, and that we should be providing a more

appropriate mix of services, more cost-effectively. It is also in keeping with the stated philosophy of the recently established special study commission that there should be one system of care with equitable access to services for all people. An insurance plan approach to care for the poor provides the best opportunity for integrating the uninsured poor into existing provider networks and the enhanced delivery systems that will need to be developed.

Chapter 1

An Introduction to the Access Issue and the Hospital Payment System in Massachusetts

Public Focus on the "Access" Issue

Hospitals in Massachusetts have restrained their cost increases under Chapter 372, the current hospital payment law, utilizing a variety of mechanisms. As evidence mounts that costs can be controlled, the means to accomplish this has begun to come under scrutiny.

Although cost containment is in no way forgotten, attention in Massachusetts and across the country is turning to quality of care and barriers to health care that certain populations face when they attempt to access services. The members of the Health Care Coalition--a coalition of business, payors, providers, state government, and organized labor--have not been willing to concede that operating our health care industry on a sound financial basis requires poor health care or poorer health status for some people. Both public and private payors are concerned that the cross-subsidization that has been used historically to fund indigent care is inequitable as well as inefficient, and needs to be replaced with mechanisms more consistent with current health financing approaches.

The need for documentation of the impact of the hospital payment system on poor people has been increasing since 1983, when former Secretary of Human Services Manuel Carballo asked

his staff to begin studying this issue. Stories of economic transfers were increasing, advocates for poor people were becoming more vocal and publicizing the plight of low income and uninsured persons, and the state became increasingly concerned about its capacity to care for poor people as the federal government abdicated more responsibility to state and local governments. In 1985, Secretary Johnston chose to pursue this issue further and requested that the Office of Health Policy prepare this report for health policy makers across the state.

The intent of this paper is to describe the interrelationship between the hospital environment and payment for uncompensated care, to provide a profile of the uninsured and poor populations, and to present a range of policy options for improving access to health care for these groups. The analysis herein focuses on the financial incentives created by Chapter 372 and the response to these incentives by the hospital industry. This discussion necessarily involves a presentation of information on the trends in uncompensated care, the demographics available on the uninsured population in Massachusetts and a history of Medicaid program changes and payment mechanisms.

Defining and Measuring Access

The access issue is typical of many health care issues in the scarcity of consistent, reliable and comprehensive data. The available information is sometimes quantitative, sometimes qualitative and almost always questioned. Close scrutiny is appropriate, since the real hardship and suffering in both

physical and emotional terms should not be taken lightly. Most data on uninsured persons has been collected at the national level, and individual states are faced with the options of devoting considerable resources to develop comparable data in their own states, developing proxies, or simply estimating their position relative to the national data.

Most operational definitions of access reference empirical measures such as availability of services and utilization of services and the more qualitative dimensions such as process, characteristics of the population at risk, and patient satisfaction. The latter category can be evaluated with measures such as hospital closures that increase the perception of vulnerability in an area, reduction in services used primarily by poor people, and administrative changes such as credit and collection policies and payment policies that limit the likelihood of poor persons using a hospital. Utilization of services by the uninsured poor is not available as a direct measurement, but can be estimated by using changes in bad debt and free care and estimating changes in the number of uninsured persons. Although bad debt and free care can change independently of changes in level of service by the uninsured poor, an changes in the number of uninsured are rough estimates derived from changes in the number of Medicaid cases and the number of unemployed, these measures are useful as rough approximations of barriers to access.

Overview of the Hospital Payment System

The tremendous growth in health care costs since the 1970's set off a very predictable reaction in the business community and at all levels of government that purchase health care services. Cost containment became the ruling issue. The federal government acted more radically than other payors when it moved to implement DRGs in 1983. This forced many states, including Massachusetts, to assess the effectiveness of their existing payment mechanisms and their vulnerability to cost shifting from Medicare's prospective payment system.

Cost containment in Massachusetts took the form of a new hospital payment system in 1982 known as Chapter 372. A group of business leaders, organized labor, insurors, provider representatives and state government known as the Health Care Coalition, sponsored negotiations to restructure the hospital payment system. These discussions led to Chapter 372 of the Acts of 1982 and the federal waiver from Medicare's Prospective Payment System, DRGs and a related waiver for Medicaid. Prior to 1982, the payment system consisted of conflicting incentives across payor classes and it was held responsible for the dramatic increases in hospital costs. There was also great concern over the increasing cost shifts, primarily from public payors to private payors.

Chapter 372 is largely a prospective payment system based on hospital specific budgets that introduced elements of risk and reward into the hospital payment system. Prior to Chapter 372, Blue Cross had incorporated these principles via the MAC

(Maximum Allowable Cost) concept in its master contract with hospitals. Placing all payors in the same payment system and limiting revenues provided strong incentives for hospitals to cut costs. Chapter 372 departed radically from the former system in several critical ways by:

- establishing and enforcing a cap on gross patient service revenues for all acute hospitals
- establishing a fixed relationship between Blue Cross and commercial insuror rates of payment
- including provisions for volume of service and productivity factors intended to control the rate of growth in hospitals in the reimbursement formula
- making bad debt/free care explicitly a private sector responsibility and more equitably distributing its cost among the private payor as of October 1, 1984

Members of the Coalition believe that Chapter 372 has generally been a success and achieved its goal of cost containment. Implementation of the system revealed several technical errors that were corrected in subsequent legislation, Chapters 389 of the Acts of 1983, Chapter 189 of the Acts of 1984 and Chapter 347 of the Acts of 1984. The real test for the system came in 1985, when the time came to apply for a renewal of the federal waiver. The hospital environment had become increasingly competitive as HMO membership increased throughout the state, and Medicare's attempt to cut payments became clearer. The Coalition chose not to pursue the waiver but reaffirmed its faith in Chapter 372's methodology for all other

payors through Chapter 574 of the Acts of 1985.

A more detailed explanation of Chapter 372 and its amendments, as well as a brief history of hospital payment systems in Massachusetts is contained in Appendix H.

The Hospital Environment

A description of the hospital environment, the context in which to view the findings in Chapter 3, is presented in Chapter 2. The specific revenue implications for hospitals serving the uninsured poor and Medicaid recipients and discussion of the specific protection built into the law for vulnerable populations and vulnerable hospitals are presented for pre- and post- Chapter 372 time periods. This section of the report provides critical detail on Chapter 372 and its amendments. One point the chapter makes clear is that the payment system has the potential to impact access to health care, but more directly impacts hospital decision-making processes.

One aspect of the hospital environment that is not included in this paper but clearly has an impact on a hospital's financial strategy is the increasing competition among hospitals for HMO business and other private sector patients. The utilization of hospital beds by insured people is declining steadily, lowering occupancy rates in hospitals across the state. HMOs provide a reliable source of patients and income for hospitals with HMO contracts, and greatly enhance a hospital's ability to estimate demand for specific services and respond to the cost containment incentives in Chapter 372. Moreover, hospitals are now shifting to the DRG system for Medicare patients, which is the most significant patient

population for most hospitals. Advocates for the elderly are greatly concerned about the incentives to underserve Medicare beneficiaries under the DRG system, and will be monitoring hospitals for evidence of "quicker and sicker" discharges.

Assessing the Impact of Chapter 372

In this paper, the measures of hospitals' decision-making process are reviewed in Chapter 3. Changes in hospital credit and collection policies filed with the Rate Setting Commission are summarized and examined for changes encouraged by Chapter 372 financial incentives. The evidence on economic transfers is largely anecdotal, collected by the House Officers Association at Boston City Hospital. While it is clear that economic transfers have been occuring, we do not know if there has been increased "dumping" since Chapter 372 was enacted. The utilization data available does not support this belief, but the anecdotal information and utilization data are not necessarily inconsistent.

Financing and Delivery of Care to the Uninsured

The analysis of Chapter 372 and its effects on care for the uninsured poor and Medicaid recipients indicate that the payment system attempts to protect vulnerable populations. However, the uninsured do not receive care that is comparable to their insured counterparts. Chapters 4 and 5 describe the status quo for the uninsured and policy options for providing more equitable care and efficient care to this population.

The current system for financing care for the uninsured, a

statewide pool for uncompensated care, is not completely satisfactory to business, payors, advocates, and providers. The challenge will be to develop a system that is broad-based financially, equitable to providers, and improves access to a more appropriate mix of services for the uninsured. The specific patterns in the status quo that will be either accepted or changed include:

- reliance of poor people on municipal hospitals for care;
- variations in the "accessability" to non-municipal hospitals for the uninsured poor;
- underutilization of inpatient services by the uninsured;
- the fact that uninsured near poor people are twice as likely as insured near poor to use hospital outpatient departments and emergency rooms.

As in the preceding chapters, Chapter 5 focuses on payment and financing mechanisms to improve access to health care for the uninsured poor. Although these are key to maintaining providers' willingness to care for the poor, it must be noted that payment and financing mechanisms should be one part of a larger set of initiatives to improve health care and health status in this population.

Chapter 2

Chapter 372 and the Changing Hospital Financial Environments

Introduction

Hospital 'cost containment' systems have dominated the health policy agenda, both nationally and in Massachusetts, for much of the last decade. However, the nomenclature is misleading. Most so-called cost containment systems -- such as Chapter 372 in Massachusetts, or the federal DRG-based Prospective Payment System for Medicare -- are, from the hospital's viewpoint, revenue containing, and not, at least directly, cost containing measures. The assumption is that hospitals, if they are to survive, will act to contain costs in response to revenue constraints.

These revenue containing systems inevitably raise fears about negative effects on access to care, especially for the poor, for several reasons. First, hospitals seeking reductions in costs may well reduce the availability of services which are utilized disproportionately by the poor. Similarly, hospitals may try to reduce the volume of services delivered as free care. Second, some hospitals (or major parts of hospitals) may eventually be forced to close due to revenue constraints. If these closures occur in medically underserved areas, access to care may be impaired for all nearby residents. Further, since public municipal hospitals and other hospitals which serve disproportionate numbers of poor patients

tend to be in weaker financial condition than hospitals with more affluent payor mixes, there are reasons to fear that capacity reductions will particularly reduce the health care available to poor people.

None of these negative consequences is a necessary result of effective cost and revenue constraints. First, if the revenue containment system provides for equitable rates of payment for free care and for Medicaid recipients, then we should not necessarily expect hospitals to reduce services to the poor in response to the dictum to contain costs. Second, if the cost containment system provides special consideration for hospitals which serve large proportions of the poor, the financial condition of such hospitals can actually be improved by the system.

The Chapter 372 system has provisions intended to protect both vulnerable patients and vulnerable hospitals. The statewide uncompensated care pool created in recently enacted legislation is the only reimbursement system in the country that ensures that almost all hospitals will be paid in full for services provided as free care or generating bad debt and that individual hospitals will not be placed at a competitive disadvantage by being forced to increase its prices in order to receive payment for bad debt and free care. This uncompensated care pool, in common with the "Section 51" bad debt and free care financing mechanism which preceded it under Chapter 372, for FY'85 should ensure that hospitals will not have strong

financial incentives for reducing services to the poor as a means of cutting costs. In addition, Medicaid contributes to the payment of free care at Boston City Hospital (BCH) and a few other hospitals with large concentrations of uninsured and poor patients; this is a vital component of the access protection provided by Chapter 372. The extent of this financial protection is remarkable; BCH operates with approximately 40% of its charges written off to free care or bad debt--not-withstanding this high level of "uncollected accounts", the combination of payments for uncompensated care from private and public payors ensures that BCH requires virtually no operating subsidy from the City of Boston, and, depending on the accounting principles used, may actually return a small amount of money to the city's coffers.

The effects of Chapter 372 on the financial disincentives to serving the uninsured poor are described in section 2.1. It is shown there that during hospital fiscal years 1983 and 1984 (the first two years of Chapter 372) the financial disincentives for serving the poor were similar to the disincentives under the pre-Chapter 372 system in effect in FY 81 and FY 82. These disincentives were reduced somewhat with the implementation of Section 51 in October, 1984 (hospital fiscal year 1985). This section provided that, with minor exceptions, the private sector was responsible for paying hospitals for all bad debt and free care that was not paid by Medicare and Medicaid.

The financial discentives to serving the uninsured poor were reduced even further with the enactment of the amendments to Chapter 372 contained in Chapter 574 of the Acts of 1985. Under the previous "Section 51" payment system, hospitals were required to raise their prices in order to receive reimbursement for bad debt and free care. In contrast, Chapter 574 establishes a statewide uncompensated care pool for hospital fiscal years 1986 and 1987 which provides that there is a uniform impact on the charges of all hospitals for the financing of bad debt and free care, so that no hospital will be put at a competitive disadvantage if it increases its services to the poor.

Although payment to hospitals for bad debt and free care is more satisfactory (from the hospital's point of view) under Chapter 372 than under the system which preceded it, we should not expect Chapter 372 to lead to large increases in access to care for the poor. Probably the largest financial disincentive regarding access is uncertainty about how services to the poor will be financed in the future. Chapter 574 provides for a sunset on September 30, 1987, and uncertainty concerning payment arrangements after that date makes hospitals wary of increasing services to the uninsured and then being 'stuck' with these patients in a less favorable payment system. In addition, delayed cash flow makes payment for services delivered to the uninsured poor somewhat less attractive than services delivered to the privately insured. In the concluding chapter, we make

recommendations for changes which would improve access for the uninsured.

In a parallel fashion to Section 2.1, the effects of Chapter 372 on the financial disincentives to serving Medicaid recipients are described in section 2.2. It is argued there that uncertainties concerning the Medicaid payment rate during FY 83 and FY 84 may have caused some slight increase in the disincentive to serving Medicaid patients, but that it is unlikely that hospitals would have taken action to reduce services to Medicaid recipients as a result. Further, corrective legislation (Chapter 347) restored Medicaid payments to their pre-Chapter 372 level, provided increased financial incentives to hospitals for accepting additional Medicaid patients,and financial disincentives to hospitals for reducing services to Medicaid patients and expanded access to hospital services for approximately 30,000 general relief recipients.

The chapter concludes with a brief discussion of the effects of Chapter 372 on other aspects of the hospital environment, and the effects which might be expected on access. As mentioned above, revenue containment systems raise fears about access, and this point is elaborated in section 3.3.

While it is not possible to draw a firm conclusion about the strength or direction of effects on Chapter 372 on access for the poor during the first two years of its operation, it is clear that the poor have better access to hospital care under the current Massachusetts reimbursement system than under any of the systems which preceded it. On the positive side, special

provisions for BCH and other hospitals that serve the poor have certainly protected their economically disadvantaged clientele. Second, expansion of coverage for General Relief recipients has increased access for this population. Third, in FY'85 explicit private sector responsibility reduced the financial risk to hospitals of serving the uninsured poor. Fourth, changes in the Medicaid payment system provide increased financial incentives for hospitals to accept Medicaid patients.

On the negative side, revenue containment raises fears that cannot be summarily dismissed. In addition, the introduction of any new payment system engenders uncertainty, and at the time of transition some hospitals may pull back from service to the poor. This is a particular concern during the transition to Chapter 372, in that Section 51 provisions did not take effect immediately, and problems in the Medicaid payment system took time to work out. Most importantly, as the health care system becomes increasingly competitive, access for the poor inevitably is an increasingly larger concern. An account of the effects of Chapter 372 on access during its first two years of operation requires empirical observation, and evidence for that account will be the focus of Chapter 3.

2.1 CHAPTER 372 AND RATES OF PAYMENT FOR THE UNINSURED POOR

This section examines the effects of Chapter 372 on the revenue implications to hospitals of serving the uninsured poor. To the extent that Chapter 372 reduces (or increases) the rate at which a hospital receives reimbursement for a particular kind of patient, hospitals might react by reducing (or increasing) access for that class of patient. If a hospital's sole objective were revenue maximization, it would certainly attempt to affect access in response to changes in payment rates. Hospitals, of course, are not solely revenue maximizing institutions, and we do not necessarily expect hospitals to make decisions regarding access solely on the basis of changes in rates of payment. Nevertheless, it will be instructive to understand the reaction that would be expected from hospitals if they were primarily revenue maximizing institutions.

Like the economist's mythical free lunch, from one perspective there is no such thing as free care. The costs of services delivered to people for whom the hospital does not receive direct payment are paid for in some fashion -- either in the amounts paid by individuals and/or insurors who do pay the hospital for care, by private donations or direct public subsidies, or by the hospital itself in the form of reduced operating margin. This section describes who has paid for free care services before and after the enactment of Chapter 372, and discusses the expected effects of these arrangements on hospitals' willingness to provide free care services.

Reimbursement for Bad Debt/Free Care Prior to Chapter 372

Under the hospital reimbursement system that preceded Chapter 372, two periods deserve particular attention: fiscal years 1978 through 1980, when the 'pure 409' charge control program was in effect, and fiscal years 1981 and 1982, when the 'capped 409' charge control program was in place. During the 'pure 409' period hospitals could, in theory, recover from Blue Cross, the commercial insurors, and self paying patients the entire cost of services which generated bad debt or were given as free care. Blue Cross paid its 'share', as measured by its share of total hospital charges, of bad debt and free care; since Blue Cross is, on average, about 25% of the hospital business in Massachusetts it paid about 25% of the statewide bad debt and free care, though the percentage varied with Blue Cross`s share from hospital to hospital.

Under the 'pure 409' charge control program, hospitals were allowed to set their charges at a rate high enough to recover all of the bad debt and free care (BDFC) costs that were not reimbursed by Blue Cross. Because neither Medicare nor Medicaid reimbursed hospitals for bad debt or free care, the paying charge based payors (commerically insured patients and paying patients with no insurance) paid for approximately 60% of bad debt and free care, even though they accounted for less than 20% of the hospital business in the state.*

---

* The 15% of BDFC that was not paid for by Blue Cross or the charge payors was financed primarily by local government subsidy, and, in 1982, to some extent by Medicaid.

Diminishing this cost shifting and decreasing the competitive disadvantage faced by the commercial insurors relative to Blue Cross was one of the objectives in framing Chapter 372.

For the average hospital, in which 25% of the business is Blue Cross, and 20% of the business from paying charge based payors, the hospital needed to raise its charges by approximately four dollars for every dollar of BDFC services it provided. A hospital with a poorer payor mix of 20% Blue Cross and 15% commercial needed to raise its charges by almost six dollars for each dollar of BDFC services. At Boston City Hospital, with approximately 7% Blue Cross, 4% commercial and 40% BDFC, charges would have had to be over 2 billion dollars to cover 50 million dollars of bad debt and free care cost.

The 'pure 409' charge control program operated with a two year lag: the amount of bad debt and free care costs built into the charge structure in any given year was based on the percentage of the bad debt and free care services that the hospital provided two years previously. As a result, if a hospital did not change the level of BDFC it provided, its charge structure for that year would be set high enough to pay for all of the costs for BDFC services delivered in that year. A hospital which increased its BDFC services, however, would have to wait two years for payment from the charge based payors to reflect its increased level of BDFC services. Under the 'pure 409' program, then, the need to raise charges and a two year wait for payment made the uninsured poor financially unattractive to hospitals compared to insured patients.

The 'capped 409' charge control program, in effect for hospital fiscal years 1981 and 1982, further increased the financial disincentives to serving the poor. Under this program, a hospitals FY'81 approved gross patient service revenue (GPSR) was determined by multiplying its FY'80 approved GPSR by a uniform inflation factor and then adjusting the result for some hospital specific changes (volume, new services, major capital projects, etc.). A similar system was employed for the '82 cap, based on the hospital's GY'81 approved GPSR. As a result, the FY'82 and FY'82 charge structures primarily provided for the level of BDFC that had been provided in FY'78 (the base year for the FY'80 charge structure), which in turn was the base that was inflated to compute FY'81 and FY'82 allowable charges.

To the extent that the proportion of hospital services devoted to BDFC did not change from FY'78 levels, the hospital could continue to recover its BDFC costs from Blue Cross and from the commercial insurors through the charge structure. However, if a hospital increased the provision of BDFC services, it was not allowed an increase in its charge structure to recover the increased costs. Similarly, if a hospital reduced its provision of BDFC services it was not required to reduce its charges. As a result, hospitals were at risk for increases in the proportion of services that were BDFC.

Reimbursement for Bad Debt/Free Care in FY83 and FY84

This risk continued (for hospitals other than BCH) during FY

'83 and FY'84, the first two years of Chapter 372. During this time period reimbursement rates for BDFC were relatively similar to the rates under the 'capped 409' system. Hospitals received reimbursement from charge based payors for the level of BDFC services that they provided in 1978 (the base year for the capped system). To the extent that BDFC levels changed at a given hospital since that time, the hospital's operating margin was affected. Thus, the reimbursement system during the first two years of Chapter 372 provided approximately the same fiscal environment for serving the uninsured poor as the capped 409 system which it replaced.

There were, however, major changes in the participation of Medicare and Medicaid in the reimbursement for BDFC during the first two years of Chapter 372. Medicare agreed to pay a share of BDFC, capped at 1.4% of Medicare's statewide liability. While this Medicare 'buy in' increased payments to hospitals for BDFC services, the method of distribution did not provide financial incentives for increased provision of BDFC services.

More significantly in policy terms, if not in dollars, Medicaid agreed to pay its share of free care at Boston City Hospital and a handful of other hospitals in which 68% of the patients were Medicare, Medicaid, other government payors, or bad debt or free care. This provision, which increased Medicaid reimbursement to BCH by over $10 million, has been important in improving the financial viability of institutions that provide disproportionate services to the poor. Further, the Medicaid payments under Chapter 372 reflect the relationship of Medicaid payments to Blue Cross payments in FY'82, and since in FY'82

Medicaid had paid at a higher level than Blue Cross at BCH, the Medicaid payment system froze in the "premium" in Medicaid payments at BCH (in contrast to freezing the FY'82 Medicaid discount at other hospitals). This "premium", essentially an implicit subsidy for free care, resulted in approximately $15 million in additional Medicaid payments at BCH in FY'83.

In summary, during the first two years of Chapter 372, the financial disincentives to serving the poor were not much changed, for most hospitals, from the disincentives under the 'capped 409' system. For Boston City Hospital and other primarily municipal hospitals, however, payment for free care services increased, allowing these hospitals to better serve the poor.

Payment for Bad Debt/Free Care in FY85

This situation changed markedly on October 1, 1984, when Section 51 of Chapter 372 was implemented. This provision guarantees hospitals that they can receive payment in full for the costs of BDFC services they provide. It is similar to the financing for BDFC in effect during the 'pure 409' period in that the combination of changes paid by the charge based payors and the payments made by Blue Cross pay for the costs of BDFC services not reimbursed by other payors. However, unlike the 409 system, in which Blue Cross paid its 'share', as measured by its share of total hospital charges, and the charge based payors paid all the rest, pursuant to Section 51, Blue Cross and the charge based payors divide the private sector liability in proportion to their shares of the private sector business at the hospital. For example, if Blue Cross is 25% of a hospital's business and the charge based payors are 20%, then Blue Cross will pay 25/45, or 55% of the private sector liability of BDFC, and the charge based payors will pay the remaining 45%.

Chapter 372 operates with a one year lag, rather than the two year lag under the 409 system. If a hospital increases (or decreases) the level of BDFC services provided in one year, its charges are allowed to reflect that change in the next year. As before, if the level of BDFC does not change from the previous year, then payment received from Medicare, Medicaid, Blue Cross, and the charge based payors should exactly cover the costs of the BDFC services provided. Moreover, if there is a change in the level of BDFC from one year to the next, under the Chapter

Chapter 372/Section 51 system the amount of the hospital's approved GPSR in the year(s) after the rate year will be adjusted upward or downward so that the hospital will effectively be paid its actual cost of BDFC for the rate year. This is in contrast to pre-Section 51 (and pre-Chapter 372) systems which had no adjustment for actual rate year experience.

The more equal division of the private sector liability under Section 51 meant that for FY'85 hospitals were not forced to raise their charges by as much as they were during the pure 409 period in order to recover a dollar of BDFC services. While during the pure 409 period, the 'average' hospital with 25% Blue Cross and 20% charge based payors needed to raise charges by $3.75 in order to receive full payment for $1 of free care, under Chapter 372 for FY'85 it needed to raise charges by less than $2 to recover the costs of $1 worth of free care.

Reimbursement for Bad Debt/Free Care in FY '86 and FY '87

As originally enacted, Chapter 372 and the bad debt/free care are financing mechanisms in Section 51 were intended to continue through FY 88. However, as described more fully in Appendix H, as a result of changes in the conditions under which Medicare was willing to participate in the system, Medicare pulled out of the all payor system on October 1, 1985 and began reimbursing under the Prospective Payor System (PPS), which makes a fixed payment for each Diagnostically Related Group (DRG). To cope with this change, the legislature enacted Chapter 574 after the Acts of 1985, which maintained the basic Chapter 372 payment system in which Medicaid, Blue Cross and the

commerical insurors each pay their share of a hospital's global budgets.

Chapter 574 did, however, changes substantially the reimbursement system for bad debt and free care. First, Medicare, under Chapter 372, made an approximately $20 million contribution towards the statewide bad debt/free care amount of approximately $220 million (in FY'84 dollars). The PPS system, however, has no explicit allowance for free care, and in Chapter 574 the private payors agreed to pick up the $20 million in free care payments that Medicare had been making under Chapter 372.

Second, and probably more importantly, Chapter 574 created a statewide uncompensated care pool. As noted above, under the Section 51 system, a hospital was able to receive payment for bad debt and free care, but only by raising its prices above the level that was required to recover private sector patient care costs. In an increasingly competitive insurance environment. In which purchasers are sensitive, for the first time, to be the level of a hospitals prices, the need to raise prices posed an increasingly large disincentive to hospitals to serve the uninsured poor. The statewide uncompensated care pool removes this disincentive by providing that each hospital in the state raises its prices over the level needed to recover patient care costs by a uniform amount. Hospitals which raise more money from this `charge-up' than they need to cover their own bad debt/free care costs pay the difference into a central bank account. Hospitals which raise less money from this charge-up than they need to cover their bad debt/free care costs receive money from the bank account.

The 'charge-up' is calculated to ensure that the payments to the pool's bank account equal payments from the pool (plus a small capped administrative cost).

The statewide 'charge-up' and the individual hospital payments to and from the pool are estimated using the most current data available on bad debt/free care charges, and are updated as new information becomes available. The pool is not 'capped', but will contract or expand as the total amount of bad debt and free care in the system contracts or expands. Thus, an individual hospital is assured that it will be paid for its bad debt and free care, and is assured that it will not be placed at a competitive disadvantage relative to other hospitals, if its free care increases.

In FY 86, the first year of operation for the pool, the initial estimate of the statewide charge up is 9.8%. It is important to note that this does <u>not</u> mean that changes are 9.8% higher than they were before the pool was enacted. Under the Section 51 system, each hospital had a unique 'charge-up' to recover its bad debt/free care costs and these 'charge'ups' averaged 8.8%. As noted above, in FY 86, the private payors agreed to pay the $20 million that Medicare had previously been contributing to free care, and this agreement caused the increase to average charge-up from 8.8% to 9.8%. The uncompensated care pool, per se, did not affect the level of charge up at all, but rather changed a situation in which there was wide variation in hospital charge levels due to the wide variation in the level of bad debt/free care to a situation in which all hospitals have a uniform charge up to

share equitably the burden of financing uncompensated care.

SUMMARY

The financial incentives created by the method of payment for free care for the first two years of Chapter 372 should have had little effect on the willingness of hospitals to provide free care services compared to the previous system, with the exception of BCH and municipal hospitals where payment for free care improved. This situation changed somewhat on October 1, 1984, when the financial incentives became more favorable for access than the incentives under previous systems. The incentives changed markedly on October 1, 1985, when the establishment of the statewide uncompensated care pool provided that hospitals would not be put at a competitive disadvantage, relative to other hospitals if they increased their level of bad debt and free care. Thus, focusing purely on the financial incentives, we might expect the willingness of hospitals to provide services to the uninsured poor to increase somewhat.

2.2 Chapter 372 and Rates of Payment for Medicaid Recipients

Medicaid payment rates under Chapter 372 are set by complex and little understood formulae. The complexity stems primarily from a combination of three factors. First, Medicaid historically paid on a per diem basis, while under Chapter 372 it pays, like all other payors, on the basis of charges. Second, historically Medicaid has enjoyed a discount from the rates paid by other payors -- in part because it recognizes fewer elements of cost, and in part because a larger portion of Medicaid days are low intensity newborn days and administratively necessary days -- that is, days for patients (primarily the elderly) no longer needing acute hospital services and awaiting placement in an alternative setting. Third, Chapter 372 was written under an extremely tight time frame.

The intent in writing Chapter 372 was to preserve Medicaid's historic discount, and further guarantee the Commonwealth a 5.5% savings in FY'83, to reflect the savings agenda that Medicaid had planned on implementing had it not joined Chapter 372. However, in the absence of data on charges rendered to Medicaid patients it was impossible to know the precise size of the historic Medicaid discount. This uncertainty, combined with the pressure under which the law was drafted, resulted in technical errors in the payment formulae.

As described more fully in Appendix H, Chapter 372 has been amended four times -- and each amendment included provisions that afffected the Medicaid rate of payment. The first amendment, Chapter 389 of the Acts of 1983, changed the Medicaid reimbursement formula, for FY'83, adding $15 million (approximately 5%) to Medicaid's FY'83 liability, and removing an unintended and perverse incentive for hospitals to increase the number of AND patients in FY'83. The second amendment, Chapter 189 of the Acts of 1984, provided for increased reimbursement to BCH from Blue Cross and the commercial insurors, and provided legislative sanction to the 'premium' that Medicaid was paying to BCH. (This premium, as discussed briefly above, reflected the fact that Medicaid had paid for a portion of BDFC at BCH in the form of high charges in FY'82. The premium, worth approximately $15 million in FY'83 and close to $20 million in FY'86, is in addition to the $10 million in explicit BDFC payments that Medicaid makes to BCH).

The third amendment, Chapter 347, of the Acts of 1984, corrected a technical error in the original Chapter 372 law known as the 'double discount'. This technical error caused Medicaid payments to be approximately 40 million dollars per year lower in FY'84 and following than they were before Chapter 372 was enacted. The amendment restored Medicaid payments to the level that had been anticipated for FY'85 and beyond, and paid the hospitals approximately 15 of the 40 million double discount dollars in FY'84. In addition, in FY'85

and beyond, Medicaid payment methodology changed to make hospitals 'payor blind'-- that is, a hospital will gain approximately as much revenue for taking an extra Medicaid patient as it will from taking an extra Blue Cross patient; similarly, a hospital will lose approximately as much revenue if it serves fewer Medicaid patients as it will lose if it serves fewer Blue Cross patients. This provision should increase access for Medicaid recipients by removing the financial disincentive hospitals might have to serving them.

Further, as part of the Chapter 347 amendment that restored Medicaid payment levels, the hospitals and private payors agreed that general relief recipients should have the same access to hospital care that Medicaid recipients have, and that care delivered to general relief recipients would be reimbursed by the private payors under Section 51 of Chapter 372. For the approximately 26,000 general relief recipients in the state, this is a major expansion of access to hospital care.

The fourth amendment, Chapter 574 of the Acts of 1985, incorporated protections for the Medicaid program against cost shifting from the Medicare program.

Anticipated Effects of Medicaid Payment Rates on Access for Medicaid Recipients

For the purposes of our analysis here, hospitals' expectations concerning levels of payment are probably more important than the actual levels of payment. Although no surveys of hospital personnel asking the question "Have Medicaid payment levels decreased since Chapter 372 was enacted, and by

how much?" were taken, it is likely that there was a general perception that Medicaid payment levels had decreased during the first two years of Chapter 372, particularly during FY 84.

While it is possible that these lower payment levels might have caused hospitals to attempt to decrease the number of Medicaid patients served, it does not seem likely that many hospitals will have actually taken such action. First, unlike the uninsured, whom the hospital is not obliged to serve except in emergency situations, all hospitals in the state are Medicaid providers, and thus must accept any Medicaid patient that a doctor on staff decides to admit. Second, virtually as soon as the double discount was discovered, Medicaid and the Massachusetts Hospital Association began negotiations to correct the technical error. Thus, at least through the late spring of 1984 there was uncertainty concerning Medicaid rates for FY 84, and a strong expectation that Medicaid would pay equitable rates in FY 85 and beyond. For both reasons we would not expect these short run decreases in Medicaid reimbursement rates to have significant detrimental effects on access to care. Further, most hospitals do not operate even close to capacity. In an increasingly competitive environment in which hospitals are concerned with maintaining volume, a Medicaid patient, even if payment is not at top dollar, will likely be more attractive than an empty bed.

In summary, the effects of Chapter 372 on payment rates for Medicaid recipients are:

in FY'83, a small reduction in expenditure levels consistent with planned savings, largely offset by increased expeditures at settlement pursuant to Chapter 389;

in FY'84, a larger and unanticipated reduction in expenditure levels, partially restored by corrective legislation;

In FY'85, a return to the small reduction planned in FY '83;

In FY'85 and beyond, a change in the Medicaid payment system which will make hospitals payor blind -- changes in the volume of services delivered to Medicaid recipients will have virtually the same reimbursement implications as changes in the volume of services delivered to patients insured by Blue Cross.

2.3 CHAPTER 372 AND CHANGING HOSPITAL ENVIRONMENTS

Chapter 372 does much more, of course, than simply change the payment rates for bad debt/free care patients and for Medicaid recipients. Chapter 372 also makes system-wide changes that may have substantial effects on the extent to which hospitals are able and/or willing to serve Medicaid recipients and the uninsured.

To the extent that Chapter 372 (or any hospital reimbursement system) restrains the rate of growth in hospital revenue, then hospitals must either reduce the rate of growth in their costs, or suffer reduced operating margins. The hospital may be able to reduce its costs in a variety of ways: a reduction in the volume of ancillaries; substitution of less expensive for more expensive drugs and other supplies; reduction in staff (and since labor costs comprise over 60% of the average hospital's budget this is necessary to achieve substantial savings over a long period of time); and, in the meduim run, a reduction of services offered.

Evidence from the first two years of Chapter 372 indicates that the reimbursement system was quite successful in restraining revenue increases, and that hospitals in Massachusetts were even more successful in restraining cost increases. Massachusetts' hospitals patient service revenues and costs in 1983 increased by 8.1% and 6.7%

respectively, compared with national increases of approximately 13% for both revenues and costs. Thus, both costs and revenues increased by significantly less during the first year of Chapter 372 in Massachusetts than in the rest of the country (and also by significantly less than during prior years in Massachusetts). In 1984, Massachusetts hospital revenue and cost increases were 7.1% and 6.2% respectively because revenues increased faster than patient service costs in both 1983 and 1984, average net operating margins in the industry actually increased from the 1982 level of approximately 0.5% to a 1983 level of 1.9% and a 1984 level of close to 3%.

Although the evidence is less clear, it appears that a large part of the reduced cost growth can be attributed to reductions in staff. Unless reduced staff is accompanied by increased efficiency or productivity among the remaining staff (and we have no evidence one way or the other on this point), then staff reductions either translate into reduced quality of care or fewer units of care. Neither of these outcomes seems reassuring to those who worry about access. However, since some of the units of care may be inappropriate -- e.g., long lengths of stay or unnecessary surgery -- it may be possible, at least up to some point, to reduce costs without compromising either quality or access. Nevertheless, if hospitals feel squeezed financially, they may repond by cutting back on programs that are less profitable -- e.g., community outreach programs, translation services, and outpatient services.

Notwithstanding the generally healthy condition of the hospital industry in Massachusetts, Chapter 372, in common with all new reimbursement systems, might cause special hardships in some number of institutions. To the extent that these institutions are in geographically isolated areas, or disproportionately serve the poor, or are in areas in which there is little excess hopsital capacity, these financial hardships may lead to decreased access.

A hardship fund for distressed hospitals was created by Chapter 372, but in part due to an awkward administrative structure was never implemented. A revised hardship fund with sounder funding and broader control was created by Chapter 347 (passed in December, 1984). Given the existence of excess capacity, and the desire to use cost containment schemes as a mechanism to bring about capacity reductions, a key unresolved issue is the ability to accomplish these reductions without reductions in access, or at least without access reductions that differentially affect vulnerable populations. As noted above, however, increased Medicaid payments at financially distressed hospitals with heavy medically indigent caseloads has generally aided those hospitals (including BCH) which shoulder a large part of the burden of serving the poor. Nevertheless, the possibility that revenue containment may encourage hospitals to discontinue services needed by some patients remain worrisome.

The potentially most important effect of Chapter 372 on access to care, however, is not on relative payment rates for the poor, nor on the financial ability of hospitals to serve the

poor, but rather on the structure of hospitals' decision making processes. In an environment in which revenues are not guaranteed to cover costs, an increasing number of hospitals are attempting to measure the marginal costs and revenues associated with each of the 'products' they produce (that is, for the care provided for each 'type' of illness). The goal is to be able to make decisions on service expansion and contraction (and on the 'types' of illness for which the hospital would want to expand or contract market share) with economic considerations weighted more heavily (and understood better) than they were in the past. As a corollary, maximization of the hospital's prestige or of physician satisfaction may be less important goals than previously, though the second, at least, may be as much a result of a growing physician surplus and competition from HMOs as it is a result of the hospital reimbursement system.

One might expect that a shift in the locus of decision making from the medical staff to administrators, and a shift in the criteria to be maximized from prestige and physician satisfaction to operating margin would cause a decrease in the availability of services for the poor. However, such a conclusion is far from obvious. Serving the poor is certainly not prestigious. More importantly, while hospitals receive payment in full for the costs of providing free care, and are paid approximately 80% of the Blue Cross rate for Medicaid patients, physicians recieve little or no payment for hospital based services delivered to the uninsured poor, and receive

substantially less than the Blue Shield rate for Medicaid patients.* Thus, it is by no means clear that access for the poor will be reduced as hospital decision making shifts from the medical staff to administrators.

In addition, the reimbursement system in Massachusetts rewards hospitals for increasing the provision of outpatient services, and this should discourage hospitals from decreasing provision of these services. While it is still true that hospitals might respond to financial pressures by cutting out community outreach workers or translators (who attract a poorer clientele), it is unlikely that hospitals would reduce the size of their outpatient departments as a whole, which might be an expected response if the reimbursement system were not weighted towards more favorable payment for outpatient services.

In summary, while revenue constraining systems inevitably raise worries about negative effects on access, the statewide uncompensated care pool and other features of the Massachusetts reimbursement system provide reasons to be cautiously optimistic about the effects of Chapter 372, as amended, on access. Changes in reimbursement rates may have led to decreased access in FY 83 and FY 84, but should increase access in FY 85 and beyond. Generally tightened hospital budgets might lead in the direction

---

* A recently proposed revision to the Medicaid fee structure, however, will address this by raising Medicaid fees to close to Blue Shield fees for medical services.

of decreased access for the poor, but improved operating margins throughout the industry, more reimbursement for hospitals which provide large amounts of care to the poor, and more favorable treatment of outpatient volume would all point in the direction of no effect, or possible improved access. An empirical investigation of these questions follows.

Chapter 3

Assessing the Impact of Chapter 372 on the Poor

The preceding chapter assessed the extent to which Chapter 372 created financial incentives to increase or decrease the volume of services provided to Medicaid recipients and the uninsured poor. This chapter evaluates the extent to which hospitals actually did take actions which might have affected access for the poor during the first two years of Chapter 372. Further, it provides a preliminary evaluation of the extent to which any such actions actually did affect access for the poor.

3.1 POTENTIAL METHODS TO AFFECT ACCESS FOR THE UNINSURED POOR AND MEDICAID RECIPIENTS

In order to know what effects to look for, it is first necessary to understand the methods that a hospital might use in attempting to control the volume of services it provides to the poor. Supposing that a hospital wanted to either increase or decrease access, what steps might it take to accomplish this end?

Hospitals can undertake both short term and long term strategies to limit access to care for the uninsured poor and Medicaid recipients. In the long term, the strategies adopted by hospitals to limit utilization by the uninsured are likely to have a similar impact on Medicaid recipients. In the short term, these two groups have very different degrees of vulnerability, and Medicaid recipients are afforded greater protection.

In the medium to long run, changes in the composition of services which are offered by hospitals are likely to have the most significant effect on access. At one extreme, closure of a large municipal hospital in an urban area will certainly reduce access for the economically disadvantaged, unless arrangements are made for other hospitals to provide service. As less extreme examples, decisions to expand or contract primary care clinics, emergency room services, psychiatric and alcoholism units, and other services with heavier-than-average concentration of poorer patients can have significant effects on access. Changes in the services which are offered, the physicians who are on the staff, associations with health centers and other providers, and in the number and focus of outreach workers, social workers, and translators can have substantial affects on access for both the uninsured and for Medicaid recipients.

Short Term Strategies

In the short run, hospitals have less control over utilization by Medicaid recipients than they do over utilization by the uninsured. Attempts could be made to affect the attitudes of the physician and non-physician staff, and this might affect the tone with which Medicaid recipients are greeted, but this is not likely to be a quick process. Given the reluctance of the physician community in some specialties and in some parts of the state to serve Medicaid recipients, it may be possible for a hospital to successfully pressure physicans to increase services to Medicaid recipients, but

hospitals would be on dangerous legal and ethical grounds if they attempted to discourage service to Medicaid patients by the physician staff.

In the short run, the most effective method for controlling the volume of services provided to the uninsured poor is probably through changes in admission and free care policies. Although hospitals are required to serve all patients who present at the hospital in an emergency condition without regard to ability to pay, hospitals have discretion both with regard to whom they choose to serve in non-emergency situations, and, in practice, in decisions regarding what is and is not an emergency situation. These areas of discretion provide hospitals with some ability to control the volume of services delivered to the uninsured poor.

Hospitals have wide discretion in the decision of how frequently, and to whom, they decide to award free care. Further, it is reasonably common for hospitals in the Commonwealth and elsewhere in the nation to require substantial pre-admission deposits (or, in some cases, pre-payment of the entire estimated bill) for scheduled admissions of uninsured patients. To the extent that Chapter 372 caused hospitals to attempt to reduce access for the uninsured poor, we should expect the frequency and/or stringency of pre-admission deposit requirements to increase after Chapter 372 was passed, and/or the frequency of free care awards to decrease.

A second method of affecting the volume of services delivered to the poor is through changes in the level and/or

focus of community outreach activities. Changes in the number of outreach workers, or changes in the communities in which outreach is concentrated, may have an effect on the volume of services delivered to the poor. By changing the extent of assistance with public assistance applications, hospitals may attempt to affect degree of welcome to the poor. More subtly, by attempting to change the 'tone' with which the poor are greeted by hospital personnel, hospitals may be able to affect the volume of services delivered to the poor. Changes in 'tone', however, are probably difficult for hospital administrators to enforce on front-line staff, at least in the short run.

Similarly, hospitals might attempt to affect the volume of services delivered to the poor through changes in the physicians, community health centers, and other community institutions with which it is affiliated. Hospitals which are willing to increase services to the poor might be expected to increase the strength of their affiliations with health centers, and/or with health plans that target low income people such as the Boston Health Plan. Similarly, hospitals attempting to control or reduce services to the poor would be wary of community affiliations in poor communities, and would attempt to grant staff privileges primarily to physicians with relatively 'well-insured' practices.

To the extent that hospitals did change their admission policies or free care policies we would expect more dumping, or economic transfers. Further, relative to the number of uninsured poor, we would expect a decline in the volume of bad

debt or free care, and/or a greater concentration of BDFC at BCH and other hospitals that disproportionately serve the poor. Similarly, to the extent that hospitals tried and were successful in affecting access for Medicaid recipients who were transferred for 'social' reasons, we would expect a change in the level of Medicaid utilization, and/or greater concentration of Medicaid recipients at hospitals which serve the poor. In the sections that follow, we examine evidence concerning some of these hypothesized effects.

3.2 EFFECTS OF CHAPTER 372 ON HOSPITAL PRACTICES

As discussed above, if a hospital wanted to decrease utilization of services by the uninsured poor, a likely approach would be to change, either formally or informally, the policies and procedures used in determining the circumstances under which an uninsured patient will be admitted. This section examines hospital credit and collection policies with the intention of ascertaining the extent to which such changes actually occurred.

Hospitals are required to file a credit and collection policy with the Rate Setting Commission (RSC) each year. The policy should state the procedures the hospital uses in an attempt to collect an account before it is written off as bad debt. In addition, the policy should state the criteria that are used in making free care awards.

One of the main purposes for the required filing of the policies is to enable RSC auditors to determine whether a hospital has followed its stated policy in writing off an account as bad debt or in awarding free care. However, because in the past there have been no regulations regarding the content of the policies, many have been extremely vague regarding both collection policies and free care awards, and some hospitals have not even bothered to file such policies. Further complicating the analytic task, some hospitals have admissions policies and/or free care policies which are separate from the credit and collection policies, and which are not routinely filed with the RSC.

These caveats notwithstanding, it will be useful to examine the policies which are filed with the RSC, paying particular attention to the extent to which these policies changed around the time that Chapter 372 was enacted. We have examined (or attempted to examine) credit and collection policies from forty-six hospitals (all of the hospitals in Boston, a 50% sample of the other hospitals in Greater Boston area (HSA IV) and a 25% sample of other hospitals in the state. See Appendix A for a list of the hospitals sampled). Of these forty-six hospitals, two hospitals had no policies on file, and an additional four had no policies on file prior to 1983, and thus cannot be compared pre- and post- Chapter 372. Of the remaining forty hospitals, thirty-one filed a policy during FY83 which can be compared with a pre-Chapter 372 policy.

As shown in Table 3-1, of these thirty-one policies, seventeen were virtually exactly the same as the previously filed policy, and an additional three were slightly changed, but apparently not in the direction of making it either harder or easier for an uninsured person to be served by the hospital. There were eleven hospitals which appeared to have a significant change in admissions policies. Of these eleven, there were ten hospitals where it was either clear or seemed likely that the new policy made it more difficult for an uninsured person to be served, and one hospital where the policy seemed to point in the direction of liberalization of admissions policies.

TABLE 3-1

SUMMARY OF REVIEW OF HOSPITALS
CREDIT AND COLLECTION POLICIES

Category	Number of Hospitals
No Policies on File	2
No Policies on File Prior to FY'83	4
No Policy Filed During FY'83	9
Policy Filed During FY'83, No Change From Previous Policy	17
Policy Filed During FY'83, No Significant Change In Stringency	3
Policy Filed During FY'83, Apparently More Stringent Than Previous Policy	10
Policy Filed During FY'83, Apparently Less Stringent Than Previous Policy	1
TOTAL	46

In general, later policies are more specific than earlier ones, and this makes it difficult to judge whether a change in written policy reflects an actual change in admission policies, or simply a codification of pre-existing practices. For example, a number of hospitals state in a pre-372 policy that a pre-admission deposit is required for scheduled admissions for the uninsured, but leave the size of the deposit unspecified,

while the post-372 policy states the size of required deposit. Similarly, in some hospitals the pre-372 policy states that a pre-admission deposit is required, but provides no guidance on the procedures to be followed if it is not paid, while the post-372 policy will explicitly state that if the deposit is not paid, the admission will be deferred or cancelled.

Similarly, in one hospital the post-372 policy states that free care will not be awarded for elective admissions, while the pre-372 policy was silent on this subject. In addition, one hospital added residency requirements to its free care policy. Apparently moving in the opposite direction, one hospital streamlined and systematized the free care award process to make speedier determinations possible.

Without further investigation it is impossible to know whether these changes in written policy reflect real changes in hospital practices, but they certainly suggest the possibility of such change. Further, there are at least two hospitals in Boston whose credit and collection policy on file at the RSC did not change in FY83, but for which there were published reports, confirmed by hospital personnel, of increasingly stringent admissions policies for the uninsured poor. Given all of the caveats mentioned above, this examination of credit and collection policies should not be taken as evidence of a deterioration of access, but does raise cause for concern.

The ambiguity in existing credit and collection policies is trabling for two reasons: First, the private payors and Medicaid (who are paying for bad debt and free care) cannot be

assured that hospitals are making reasonable efforts to collect on accounts before they are written off to bad debt and/or that hospitals are awarding free care only to people who 'should' get it. Second, uninsured poor people and their advocates cannot know the financial groundrules that hospitals will apply to them.

Chapter 347 of the Acts of 1984 addressed these concerns and authorized the Rate Setting Commission to promulgate regulations establishing standards and criteria for hospital credit and collection policies. Those regulations will become effective on July 1, 1986, and provide that:

- Hospitals must provide free care to general relief recipients and to any persons with incomes less than 100% of the federal poverty guidelines whom they decide to serve. A hospital may exempt persons with incomes between 100% and 200% of the poverty line from collection activities. Persons with incomes greater than 200% of the poverty line may be eligible for free care due to medical hardship.
- Hospitals shall not require pre-treatment deposits as a condition of service from any person whose income is below 200% of the poverty line.
- Hospitals shall not seek to execute a lien against the personal residence or automobile of a person whose income is below 200% of the poverty guidelines.

- o All free care provided shall be requested by a written application for free care, and hospitals must notify patients of the decision on each application.
- o Hospitals must post signs informing patients of the availability of free care.
- o Hospitals must make reasonable collection actions (and minimum definitions of reasonable are provided) for self-pay accounts and the self-pay portions of third party accounts.
- o Hospitals shall maintain auditable records of their collection activities and documentation of all efforts to determine free care eligibility.
- o Hospitals must collect and verify patient name, address and pertinent financial information.

The regulations leave hospitals substantial discretion, but move in the direction of establishing uniform policies. Hospitals' payment for bad debt and free care will be contingent on their consistent enforcement of adequate credit and collection procedures.

Economic Transfers

It would be highly desirable to have evidence of the effects of Chapter 372 on the number of patients who were denied services at a hospital for economic reasons, and 'dumped' onto Boston City Hospital or some other institution which cares for the poor. Reliable data on the number of such transfers does not exist for either the pre- or post- Chapter 372 period.

However, information collected by the House Officers Association at Boston City Hospital suggests that the number of patients transferred for economic reasons did increase after the implementation of Chapter 372.

According to a report issued by the House Officer's Association in February, 1984, after Chapter 372 was enacted, "Social workers, nurses, and house officers all noticed a dramatic increase in the number of economic transfers coming to the hospital (BCH)." As a result, a task force composed primarily of staff at BCH was formed to compile and document these transfers. The February, 1984 report of the task force provides a short description of twenty-one cases of patients who were transferred, and classifies these transfers into three categories: direct refusal of care to a person because of lack of health insurance or an inability to pay a preadmission deposit or fee for treatment; inappropriate referrals from smaller hospitals when the patient should have been referred to other large hospitals which were closer or offered more appropriate services; and disposition problems (homeless, awaiting nursing home placement, mentally ill).

We have examined the records of these patients and a number of additional economic transfers that have been collected by a variety of staff at BCH. It is quite clear that these patients were transferred to BCH for economic reasons, and, according to an RN who worked as a consultant in this office, in a small number of cases the inappropriate transfer or earlier refusal of care had resulted in serious clinical harm. It is less clear,

however, whether the volume of such transfers was any larger after Chapter 372 than before (BCH has, after all, been the primary site of care for the poor in Boston for many years). The observations of staff at BCH that the volume of transfers had increased should not be discounted, and provide cause for concern, but give little guidance as to the appropriate level of concern. Conversations with staff at BCH suggest that the volume of economic transfers has neither increased or decreased appreciably over the last two years.

On the positive side, a number of health center-based clinicians who refer pregnant women to Brigham and Womens have commented on an improved access situation at that hospital. The hospital has a free care committee that meets every two weeks to review free care applications it has received. A number of people have commented that this results in an equitable process which facilitates access for residents in the catchment area and for those who use the health centers with which the hospital is affiliated.

In summary, a limited number of strategies are available to hospitals that wish to limit access for the uninsured poor and Medicaid recipients. Hospitals are using these techniques to varying degrees, which is evidenced by some changes in their official policies and from reports by hospital staff. This review of credit and collection policies and the reports of patient dumping at BCH are cause for concern and warrant the additional investigation described in the next sections.

3.3 EFFECTS OF CHAPTER 372 ON UTILIZATION OF HOSPITAL SERVICES BY THE UNINSURED POOR

Hospitals have a variety of mechanisms they can use to reduce access to health care, as the last section indicates. However, hospital actions and their results are difficult to measure. This report follows the same course as other studies in that it measures changes in utilization of services by poor persons over time as a proxy for measuring changes in access. Although utilization is quite different than access, changes in utilization will support inferences about changes in access. It is important to note that changes in utilization, particularly decreases, may mean very different things in the uninsured and Medicaid populations. Since utilization among the uninsured is lower than clinically desirable, decreased utilization most probably means decreased access. The Medicaid population, however, could experience decreased utilization as a result of attempts to control inappropriate utilization.

The methodology and results for the uninsured poor and Medicaid recipients are presented in separate sections that parellel each other. A time series of utilization per capita levels would be the ideal data, but it should be no surprise that it does not exist. In general, data for Medicaid recipients is more available and better quality than data on the uninsured poor.

It is important to note that we have used percentage changes in both aggregate utilization and population data to estimate changes over time. That is, we estimate the percentage change in utilization per capita by subtracting an estimate of the percentage of change in the number of people potentially generating utilization (the number of uninsured or the number of Medicaid recipients) from an estimate of the percentage change in aggregate utilization.

Posit a time series of hospital utilization levels for the uninsured poor; e.g., a measure of age-adjusted discharges per thousand uninsured poor persons for fiscal years both before and after Chapter 372 was implemented. Consider the inferences we might draw in three hypothetical situations: utilization (discharges/1,000) increased sharply after Chapter 372 was implemented; utilization decreased sharply after implementation; utilization did not change significantly after implementation.

If utilization increased sharply after implementation, then we would have some reasons to suspect that access to hospital care for the uninsured poor had improved, though we would certainly want to investigate other explanations for this hypothetical increase in utilization. Even more surely, if utilization sharply decreased after implementation, we would likely conclude that access for the uninsured poor had been negatively affected. If the data showed no significant change in utilization after implementation, we could draw no firm conclusion regarding access, but could at least assure ourselves

that there were no negative effects on access large enough to significantly affect the level of utilization of hospital services by the uninsured poor.

Unfortunately, we do not have a pre- and post- Chapter 372 time series of hospital utilization levels for the uninsured poor. The task of this section is to estimate, as well as we can, what such a time series would show. We provide very rough estimates of changes in utilization levels of the uninsured poor for two years after implementation (FY'83 and FY '84) and seven years before (FY'76-FY'82). Estimating utilization changes requires estimates of the volume of services provided to the uninsured poor (the numerator in a utilization per capita equation) and estimates of the number of uninsured poor (the denominator in a utilization per capita equation). We use changes in bad debt and free care costs as rough proxy for changes in the total amount of hospital services used by the uninsured poor. This is a reasonably good proxy, but certainly BDFC costs can change somewhat independently of changes in the level of services used by the uninsured poor. Estimates of changes in the number of uninsured poor are qualitative in nature, but are useful as rough approximations.

Estimating the Numerator--Changes in Level of Bad Debt and Free Care Costs: Methods

We would like to measure, over time, the number of inpatient discharges and outpatient visits provided to the uninsured poor. The best available method for constructing a proxy for

this measure is to use information on the costs of services generating bad debt or provided as free care. However, to the extent that BDFC costs are attributable to people other than the uninsured poor, the proxy will be in error.

A study by Blue Cross provides valuable information on the question of who generates BDFC. In a sample of patient accounts from four hospitals in Massachusetts in FY'81, the study found that between 81% and 96% of the BDFC in each hospital was generated by the uninsured. At least in these four hospitals in that one year, relatively little BDFC was attributable to unpaid deductibles or coinsurance. This suggests that BDFC costs largely reflect the volume of services provided to the uninsured. The uninsured include, of course, the poor and non-poor; however, since a majority of the uninsured have family incomes below 200% of the poverty line, it seems likely that a large proportion of both outpatient and inpatient BDFC is attributable to the uninsured poor.

In the following figures, data is presented on BDFC costs as a proportion of total hospital industry costs from 1976 to 1984. To the extent that the volume of services provided by the hospital industry did not change over this time period, then changes in BDFC as a percentage of total costs will be a good proxy for the volume of services generating bad debt or provided as free care. To the extent that increases in hospital costs do

this measure is to use information on the costs of services generating bad debt or provided as free care. However, to the extent that BDFC costs are attributable to people other than the uninsured poor, the proxy will be in error.

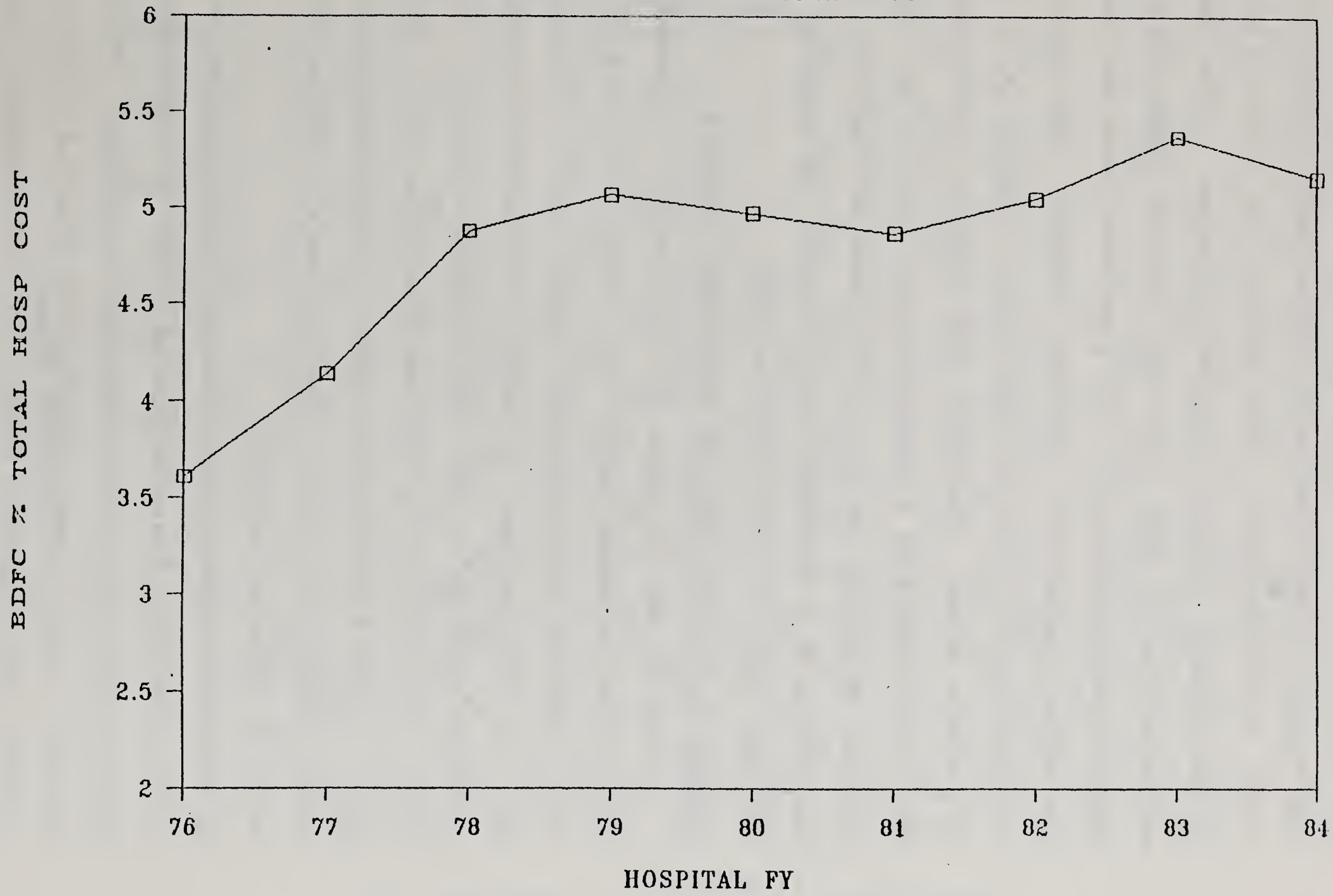
A study by Blue Cross provides valuable information on the question of who generates BDFC. In a sample of patient accounts from four hospitals in Massachusetts in FY'81, the study found that between 81% and 96% of the BDFC in each hospital was generated by the uninsured. At least in these four hospitals in that one year, relatively little BDFC was attributable to unpaid deductibles or coinsurance. This suggests that BDFC costs largely reflect the volume of services provided to the uninsured. The uninsured include, of course, the poor and non-poor; however, since a majority of the uninsured have family incomes below 200% of the poverty line, it seems likely that a large proportion of both outpatient and inpatient BDFC is attributable to the uninsured poor.

In the following figures, data is presented on BDFC costs as a proportion of total hospital industry costs from 1976 to 1984. To the extent that the volume of services provided by the hospital industry did not change over this time period, then changes in BDFC as a percentage of total costs will be a good proxy for the volume of services generating bad debt or provided as free care. To the extent that increases in hospital costs do

FIGURE 3-1

BAD DEBT AND FREE CARE

AS % OF TOTAL HOSPITAL COSTS



Sources: RSC 401 and 403 reports for FY'76-81; MAC reports for FY'82-84. Includes data for 104 acute care hospitals with data for each FY from '77-'84. See Appendix B for details.

represent real increases in the volume of services provided, then changes in BDFC costs will underestimate changes in the volume of BDFC services. If we think of the volume of services as the number of case-mix adjusted discharges, or the number of outpatient visits, then it is clear that the preponderance of hospital cost increases over the past seven years has resulted from either inflation or increased 'intensity' and that a relatively small amount has come from an increase in the number of patients served. Therefore, BDFC costs as a percentage of total costs should be a reasonably good proxy for the volume of services generating bad debt or delivered as free care, which in turn should be a reasonably good proxy for the volume of services utilized by the uninsured poor.

Changes in Bad Debt and Free Care Costs: Results

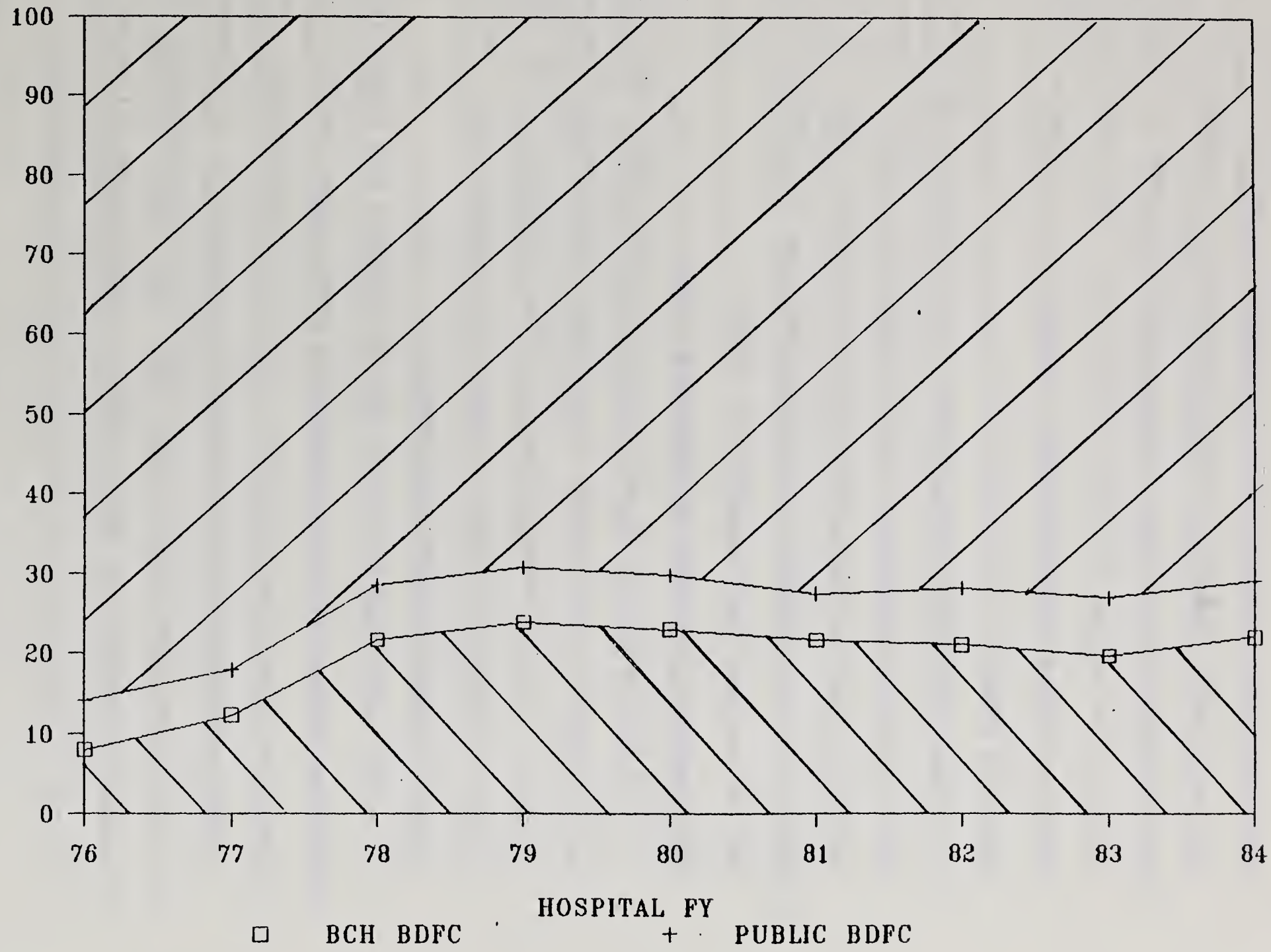
As can be seen in Figure 3-1, BDFC costs as a percentage of total costs increased sharply from 3.6% in FY'76 to 4.9% in FY'78, and were then relatively stable from FY '78 through FY '84. In the first year of Chapter 372, the BDFC percentage increased slightly to 5.4%, but decreased slightly to 5.2% in FY'84. The inference to be drawn from Figure 3-1 is that the total volume of services delivered to the uninsured poor did not change markedly during the first two years of Chapter 372, and actually increased slightly.

Relative stability in the volume of BDFC services would be little comfort if there were large shifts in the locations of BDFC services from private hospitals to municipal hospitals. However, as can be seen in Figure 3-2, this was not the case: in FY'84, as in previous years, Boston City Hospital accounted

FIGURE 3-2

BDFC BY HOSPITAL TYPE

1976-1984



Sources: RSC 401 and 403 reports for FY'82-84; MAC reports for FY'82-84.
See Appenix B for details

for approximately 22% of the BDFC costs among Massacusetts acute care hospitals; other municipal hospitals accounted for approximately 7%, and private hospitals accounted for approximately 71%. Thus, during the first year of Chapter 372, neither the volume of BDFC services, nor the locations in which these services were delivered, appeared to change much from the previous years.

These findings of no change in the level of BDFC services in FY '84, and no change in the distribution of BDFC across municipal and non-municipal hospitals suggest that the uninsured poor, in the aggregate, utilized services in similar patterns in FY' 84 as they had in previous years.

Changes in the Number of Uninsured Poor

If BDFC costs as a percentage of total costs had its faults as a proxy for the volume of services utilized by the uninsured poor, it is far better than any data available to be used as a proxy for changes in the number of uninsured poor. We offer primarily qualitative assessments.

The best data available on the numbers and characteristics of the uninsured in Massachusetts comes from recent work done by the Urban Institute and Blue Cross of Massachusetts. This work will be reviewed in more detail in Chapter 4. For here, we note that these data suggest that there were approximately 540,000 people uninsured in March, 1982. Among those uninsured

for the entire year, approximately two-thirds were in families below 300% of the poverty guideline. Estimates from 1983 data suggest that the number of uninsured increased by 20-25%. Unfortunately, similar estimates are not yet available for 1984 or 1985.

In the absence of a time series on the number of uninsured poor, we examine time series on factors which should influence the number of uninsured poor. The number of people unemployed, the extent to which employers offer health insurance to their employees, and the number of people covered by public welfare programs are three of the more important factors which influence the number of uninsured poor. We present time series on the number of Medicaid cases and the number of people unemployed, and present informed speculation on the extent to which employers offer health insurance.

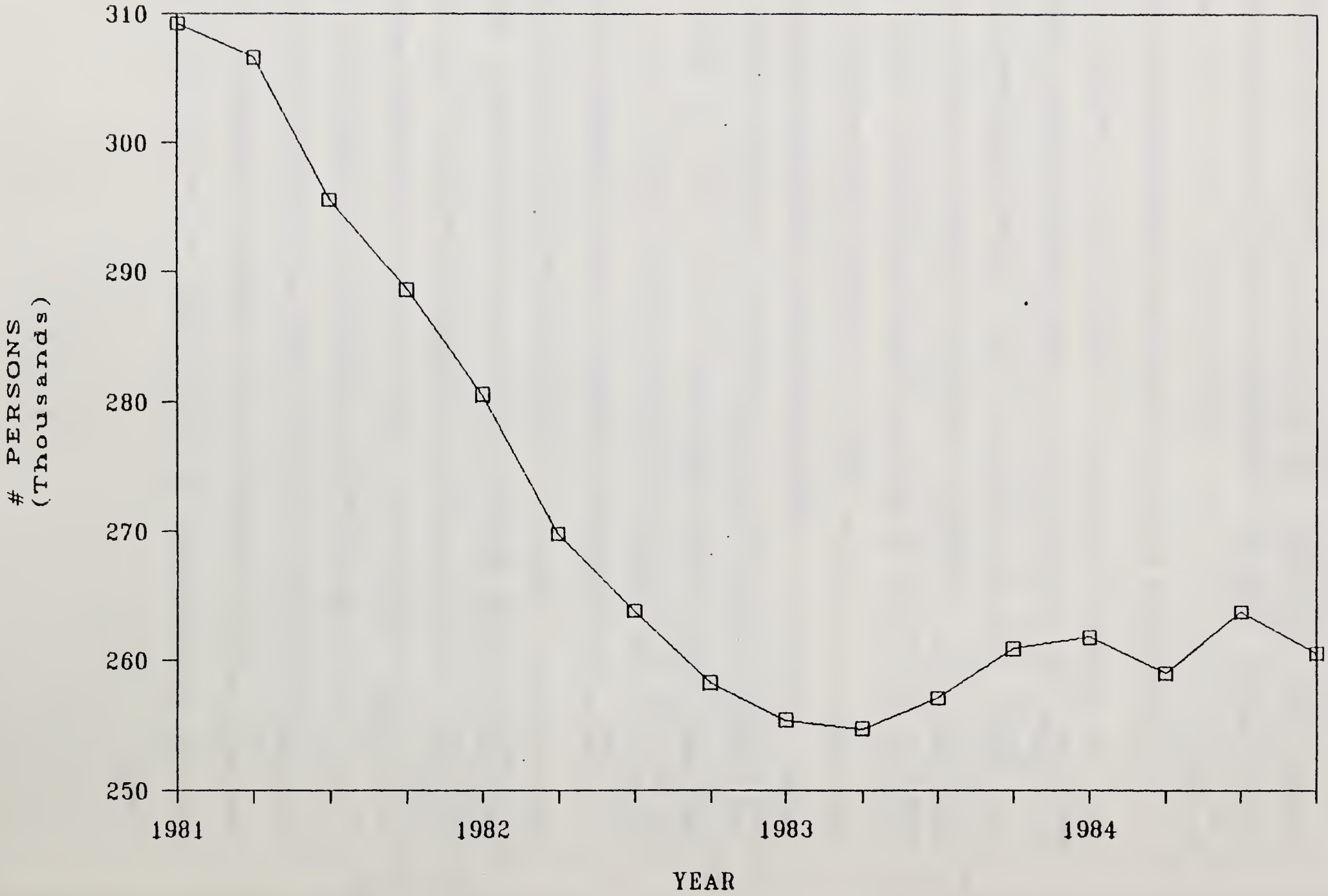
Changes in the Number of Medicaid Cases

The number of Medicaid cases is shown in Figure 3-3 from 1980 to 1984. The OBRA (Omnibus Budget Reconciliation Act) related caseload cuts are evident in 1982 and 1983. This caseload decline should have caused the number of uninsured poor to increase during these years. Assuming that approximately 50% of the former Medicaid recipients who lost eligibility had insurance after they left the caseload, then the decline in the Medicaid caseload should have increased the number of uninsured poor by approximately 35,000 in 1982, and by slightly less in 1983.

FIGURE 3-3

MEDICAID CASELOAD

1981-1984



Source: Budget Bureau, Massachusetts Department of Public Welfare

Changes in the Number of Unemployed

The number of unemployed Massachusetts residents is shown in Figure 3-4 for the time period from 1980-1984. The average number of people unemployed increased by 50,000 in 1982, decreased by 30,000 in 1983, and decreased by almost 60,000 in 1984. A large proportion of those who became unemployed probably also lost their health insurance.

Combined with the Medicaid caseload trends, these data make evident the reason for the large increase in the number of uninsured that was found in the comparison of the March, 1982 and March, 1983 CPS data: the Medicaid caseload declined and the number of unemployed increased. Further, they suggest that the number of uninsured probably changed little, on average in FY' 83 from the average FY' 83 level, since the continued decline in the Medicaid caseload was likely largely counterbalanced by the decrease in unemployment. Further, it seems likely that the number of uninsured decreased substantially in FY' 84, since the Medicaid caseload held steady, but the number of unemployed decreased sharply. (This may have been partially counteracted by trends towards decreased employer contribution as a percent of total premium cost and trends towards increased employment in industries that are less likely to offer health insurance, but this is not likely to have had a dramatic one-year effect).

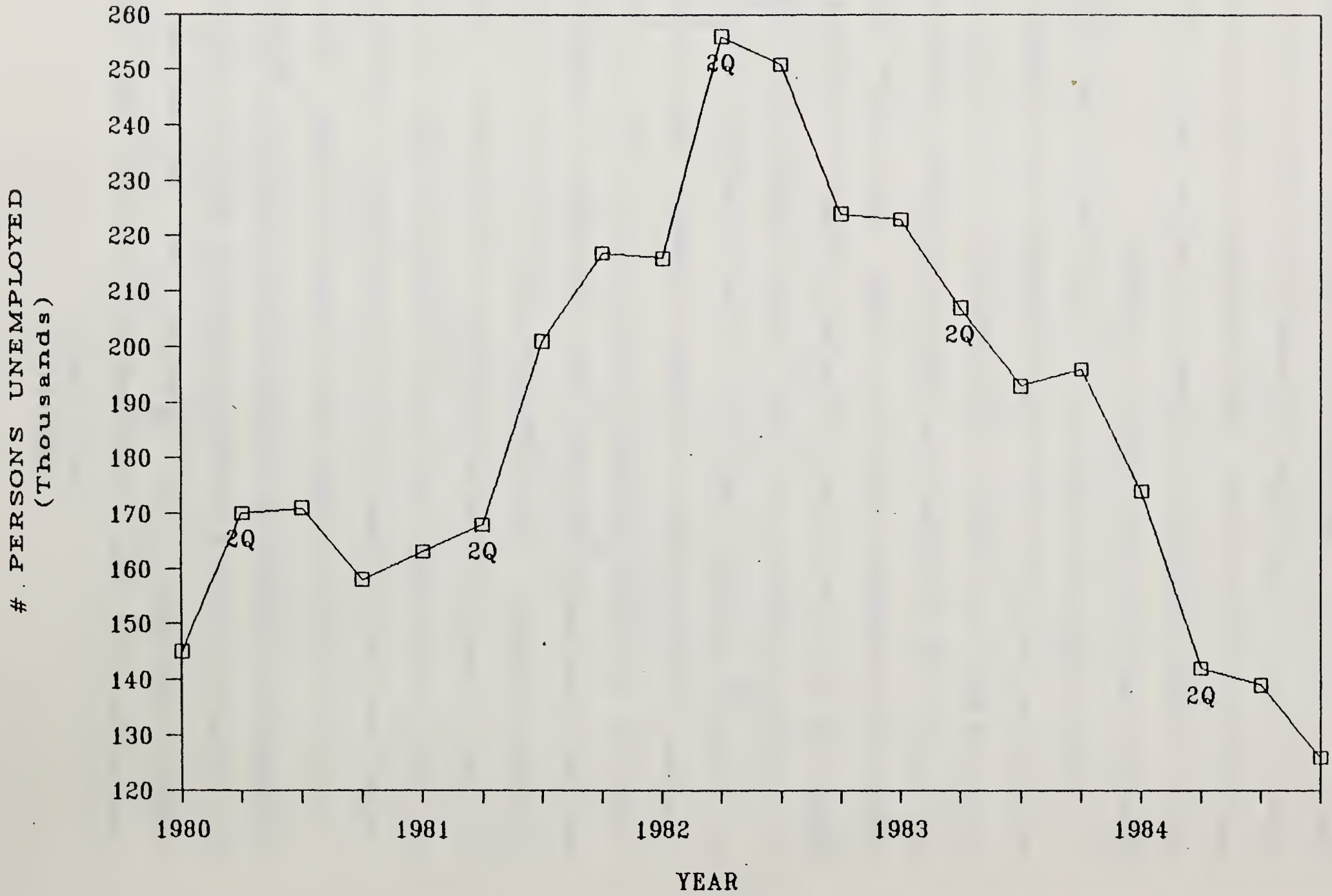
Estimates of Changes in Utilization per Uninsured Person

Combined with the evidence presented above on the volume of services delivered to the uninsured, there is a strong suggestion that access decreased during FY' 82, when the volume

FIGURE 3-4

UNEMPLOYED PERSONS IN MASS

1980-1984



Source: National Bureau of Labor Statistics, compiled by Massachusetts Department of Employment Security

of services did not change, but the number of uninsured poor increased markedly. During FY' 83 and FY' 84, however, the number of uninsured poor probably either decreased or remained steady, while the volume of services delivered to this population probably either increased or remained steady. This suggests that during the first two years of Chapter 372 there was little change (and perhaps a slight increase) in the per capita utilization of services among the uninsured.

As stated at the outset of this section, this is a blunt measure for gauging changes in access. The stories recounted in section 3.2 concerning apparent increases in the number of economic transfers are not inconsistent with the evidence presented here that overall utilization, and the distribution of that utilization across hospitals, did not deteriorate during the first two years of Chapter 372. This is comforting. If Chapter 372 had deleterious affects on access to care, they were not apparently large enough to affect overall utilization levels among the uninsured, nor the distribution of that utilization across hospitals.

3.4 EFFECTS OF CHAPTER 372 ON UTILIZATION OF SERVICES BY MEDICAID RECIPIENTS.

This section provides estimates of the effects of Chapter 372 on utilization of services by Medicaid recipients. If large decreases in per recipient utilization followed the implementation of Chapter 372, concerns about detrimental affects on access would be heightened. However, while for the uninsured it is almost certainly true that inpatient utilization is lower than clinically desirable, and thus that increases in utilization represent an increase in access and decreases in utilization represent a decrease in access, similar conclusions may not be true about Medicaid utilization. A number of Medicaid initiatives are designed at controlling inappropriate utilization, and hypothetical decreases in per recipient utilization might result from those initiatives and not from a 372-related decrease in access.

These concerns notwithstanding, it will be useful to examine trends in Medicaid hospital utilization. If Medicaid utilization has dropped significantly, it will be important to examine further whether this is a desired or undesired effect. If Medicaid utilization has increased, we will similarly want to probe further for the reasons why. If Medicaid utilization has not much changed, then we would come to a similar conclusion as we did for the uninsured: no indication of effects on access

which were large enough to affect patterns of utilization.

Measuring the Denominator: The Number of Medicaid Recipients

Data on the number of Medicaid cases are of good quality. Unlike the difficulty in estimating changes in the number of uninsured poor, a reasonably reliable time series for the number of Medicaid cases is available. The number of Medicaid cases, by quarterly average, was shown in Figure 3-3. Summarizing by hospital fiscal year, these data show a 9.7% caseload decline from FY'82 to FY'83, a 7.0% caseload drop from FY'84, and a small increase in the caseload from FY'83 to FY'84.

In constructing a denominator for a utilization per recipient measure, we would like to construct a measure that was adjusted for age and disability status. Medicaid recipients are a heterogenous population with respect to health care needs. The anticipated affects of a 10% decline in caseload on the number of Medicaid inpatient days is quite different if the caseload decline is concentrated among AFDC recipients than if the decline is concentrated among the elderly poor, the disabled, or the institutionalized.

In fact, the OBRA caseload decline was concentrated among AFDC recipients, who are relatively light utilizers of inpatient hospital services and relatively heavy users of outpatient services. As a result, the age and disability adjusted decline in inpatient utilization should be smaller than the unajusted percentage change in the number of recipients, since inpatient utilization per recipient is less for AFDC recipients than for the elderly. Conversely, because outpatient utilization per

AFDC recipient is larger than outpatient utilization per elderly recipient, the outpatient adjusted decline in utilization should be larger than the unadjusted decline.

Changes in the composition of the caseload can be accounted for by computing an adjusted change in the number of recipients, where recipients in categories of assistance with higher hospital utilization, such as the disabled, are weighted more heavily than recipients who are relatively light utilizers. This adjustment process is performed separately for inpatient and outpatient utilization, and is described more fully in Appendix C.

As can be seen in Table 3-2, the adjusted and unadjusted data are relatively similar. On a hospital fiscal year basis, the adjusted data lead to the expectation that if inpatient days per 1,000 'adjusted' recipients did not change after the implementation of Chapter 372, then aggregate Medicaid inpatient days should have declined by 6.8% in fiscal year 1983, and should have increased by 5.5% for fiscal year 1984.

If outpatient visits per 1,000 adjusted recipients had not changed in FY'83, we would have expected a 9.1% decline in the number of visits in FY'84. The caseload decline adjusted for outpatient utilization is larger than the decline adjusted for inpatient utilization because the caseload decline was concentrated among AFDC recipients, who are heavier users of outpatient services than inpatient services relative to other categories of Medicaid recipients.

TABLE 3-2

CHANGE IN MEDICAID CASELOAD,
BY HOSPITAL FISCAL YEAR, 81-84
UNWEIGHTED AND WEIGHTED BY UTILIZATION HISTORY

Hospital FYs	Unweighted	Weighted by Inpatient Utilization Pattern	Weighted by Outpat. Utilization Pattern
81-82	-9.7%	-8.9%	-11.5%
82-83	-7.0%	-6.8%	-9.1%
83-84	+1.9%	+5.5%	+3.8%

Source: Medicaid caseload data from Department of Public Welfare Budget Bureau. Columns 2 and 3 show caseload changes where category of recipient is weighted by average utilization. See Appendix C for details.

Estimating the Numerator: Medicaid Inpatient and Outpatient Utilization

Because average length of stay has been declining in Massachusetts and in much of the rest of the country, using the number of discharges of Medicaid recipients in the numerator of a utilization per recipient equation will be a more sensitive measure of access than using the number of days. This is because the number of days might decline simply as a result of shorter average length of stay without any decline in access.

However, due to data limitations, we use inpatient days as the numerator, understanding that in an era in which length of stay is declining, declines in number of inpatient days is probably desirable and may imply no deleterious effects on access. There are a variety of different sources for data on the number of Medicaid days, with all of the sources conflicting, for at least some hospitals, and none of them obviously the 'truth'. The potential data sources and the discrepancies among them are described in more detail in Appendix D. We note there that the best estimates of the percentage change in Medicaid days from FY'81 to FY'82, and from FY'82 to FY'83 come from special surveys conducted by the Rate Setting Commission. For the FY '83 to FY '84 comparison, the best source available to date comes from the RSC 404 cost reports, but this data is of questionable reliability for measuring Medicaid days.

As can be seen in Table 3-3, Medicaid inpatient days declined by approximately 5% from 1981 to 1982, declined by approximately 8% from 1982 to 1983, and increased slightly from 1983 to 1984. From FY'82 to FY'83 the percentage decline in days was slightly smaller, but not much different, from the weighted change in the number of recipients. This suggests that inpatient days per weighted recipient may have declined slightly during the first year of Chapter 372 relative to the year before implementation. If the decline had been larger, we might suspect some deterioration of access. However, the decline is small enough that if it is 'real', it may well represent the general trend towards declining lengths of stay. Moreover, the change is small enough that it may simply represent measurement artifacts.

The FY'84 data suggest that Medicaid days increased by 3.1%, although this estimate is sensitive to a variety of somewhat subjective judgments concerning which hospitals submitted valid data on the RSC 404 reports. If these data are taken at face value, they suggest that Medicaid inpatient utilization per capita decreased slightly in FY'84. A similar conclusion to that drawn for the FY'82-'83 change is appropriate: these data do not suggest reductions in access to services for Medicaid recipients.

Outpatient Utilization

Reliable data on the number of Medicaid outpatient

TABLE 3-3

CHANGES IN DAYS OF CARE UTILIZED BY
MEDICAID RECIPIENTS, 1981-84

Hospital FYs	% Change in Medicaid Days	Weighted % change in Medicaid Cases	% Change in Medicaid Days Per Case
81-82	-4.9%	-8.9%	+4.0%
82-83	-8.2%	-6.8%	-1.4%
83-84	+3.1%	+5.5%	-2.4%

Notes: % Change in Medicaid days for 81-82, and 82-83, from special surveys filled out by hospitals for the RSC. % change in Medicaid days 83-84 from RSC 404 Reports. See Appendix D for details. Weighted change in Medicaid cases from Table 3-2.

encounters is even harder to obtain than data on Medicaid inpatient days. The best data that are available in a time series come from Schedule V of the RSC 403 cost report. For the 1982-83 comparison data are available from 35 hospitals, covering approximately 50% of the outpatient volume in the state.

For this sample of hospitals, Medicaid outpatient visits increased by 4.5% from FY'82 to FY'83. Juxtaposed against the weighted 11% decline in Medicaid caseload, this suggests that outpatient encounters per recipient increased by over 15%. An increase of this magnitude is unlikely, and we suspect data problems.

In summary, it appears that utilization of hospital services by Medicaid recipients neither increased nor decreased significantly during the first two years of Chapter 372, but unreliable data temper the strength of this conclusion.

3.5 SUMMARY OF THE EFFECTS OF CHAPTER 372 ON ACCESS

Data on the uninsured poor and Medicaid populations and their respective hospital expenditures and utilization data, allow us to evaluate the impact of hospital actions on access for the poor. This evaluation is useful in conjuction with reports from hospital personnel on "dumping" and a review of credit and collection policies as we attempt to profile changes in access since the implementation of Chapter 372.

We calculate the impact of Chapter 372 on access by looking at utilization rates over time as our measure of changes in access to care. After developing the utilization data and population as accurately as possible, the ratios over time suggest that:

- the overall utilization and distribution of utilization across hospitals did not deteriorate during the first two years of Chapter 372 for the uninsured poor;
- the utilization of hospital services by Medicaid recipients remained approximately the same for the first two years of Chapter 372.

This aggregate statewide data does not contradict the anecdotal evidence of increased "dumping" reported in specific areas. The only conclusion we should draw from this data is that there was no significant change in access large enough to effect utilization rates during the first two years of Chapter 372. Moreover, access seems to have decreased among the uninsured just prior to Chapter 372, during 1982, when the

volume of services did not change but the number of uninsured poor increased considerably. Chapter 372 and its financial incentives does not appear to diminish a hospital's willingness to serve the poor. A discussion of how to improve access to services is included in Chapter 5.

These initial results from Chapter 372 are encouraging, particularly in light of the analysis in Chapter 2 that suggests access should improve in the later years of Chapter 372. In addition to the positive elements of the law, Medicaid expansion and continuing low unemployment in Massachusetts are good omens for access.

However, we have not looked at the issues that have long-term implications for access or at all the factors in the hospital environment that will affect access. We must monitor hospital closures, mergers, and changes in services that could represent severe reductions in access for poor people. It will also be important to evaluate the changes (or lack thereof) in inpatient utilization, which has been below clinically desirable levels for the uninsured.

Chapter 4

Health Care for the Uninsured: A Description of the Status Quo

The previous chapters presented evidence that Chapter 372 did not impair, and can be expected to improve, access to hospital services for Medicaid recipients and the uninsured poor. It will be shown in this chapter that Chapter 372, like the reimbursement systems which preceded it, nevertheless results in care for the uninsured that is both inequitable and inefficient. This chapter addresses four questions:

- Who are the uninsured?
- Where do the uninsured receive inpatient hospital care, and to what extent is it in different locations from the uninsured?
- How much inpatient hospital care do the uninsured receive?
- How much outpatient hospital care do the uninsured receive

Section 4.1 describes the characteristics of the uninsured. Approximately 500,000 to 665,000 citizens of the Commonwealth are uninsured at any point in time. Approximately one-third of the uninsured are in families whose income is above three times the poverty line. Among the two-thirds in families with income below 300% of the poverty line (sometimes called the "near

poor"), one-third are children, and approximately 60% of the adults are employed. These data dispute the common perception that the uninsured are primarily unemployed and/or homeless. Rather, the uninsured are a heterogenous group; for our purposes, it is important to note that many are in the labor force and employed.

Section 4.2 demonstrates that the uninsured receive hospital care in different sites than the uninsured. Free care is not spread evenly among all hospitals in the state, but rather is concentrated at a relatively small number of hospitals. Further, section 4.2 demonstrates that the presence and type of insurance has a significant effect on where people get their hospital care. In the Boston area, controlling for age, sex, and location of residence, Medicaid recipients and the uninsured poor are much more likely to obtain their inpatient hospital care at Boston City Hospital than are the Blue Cross or commercially insured. As a result, the payor mix at BCH is significantly poorer than the payor mix of patients in the neighborhoods it serves. Similar results are found for Cambridge City, Worcester City, and other hospitals with high bad debt/free care percentages. Conversely, the payor mix at a number of hospitals in Boston and throughout the state is significantly richer than the payor mix of the areas they serve.

Not only is the site of inpatient care different for the poor, but as shown in Section 4.3, the uninsured also receive substantially less inpatient care than the insured. Data from national surveys suggest that the uninsured poor are

hospitalized approximately 70% as often as the insured, although the health status of the uninsured is similar to the health status of the insured. Further, hospital admissions for the uninsured are much less likely to be characterized as elective than admissions for the insured, which suggests that the uninsured are less likely to be hospitalized than the insured. In addition, although the estimates are somewhat speculative, rough calculations of the total number of hospital days provided as free care or generating bad debt suggest that inpatient utilization rates for the uninsured are approximately 60% to 70% of the rates among the uninsured. Clearly, access to inpatient care for the uninsured is inferior to access to the insured.

Section 4.4 shows that, contrary to the situation for inpatient services, outpatient hospital utilization for the uninsured poor, and, to a somewhat lesser extent, for Medicaid recipients is significantly higher than utilization for the privately insured. For Medicaid recipients this reflects two primary factors: first, the lack of private primary care physicians in poor neighborhoods and the reluctance of some private physicians to treat Medicaid recipients and second, reliance on hospital-licensed community health centers. These factors also explain high outpatient utilization rates for the uninsured poor. In addition, high rates of outpatient hospital utilization result from a system in which 'free care' is not reimbursed if it is delivered in a free standing community health center or in a private physician's office.

In summary, we have a reimbursement system which produces both inequitable and inefficient results. Inequitable, in that the uninsured and Medicaid recipients have poorer access to inpatient care than do the privately insured. Regardless of where they live, the poor are more likely to be hospitalized at BCH and other municipal hospitals than are private paying patients. The poor are less likely than the privately insured to be admitted for elective procedures. While some part of this lower utilization may be desirable (utilization among some of the privately insured is probably higher than clinically appropriate) some part clearly represents the undesirable results of inadequate access.

The system is inefficient to the extent that the poor overutilize hospital outpatient services. This is both a costly and undesirable method of delivering primary care, which often results from inadequate access to private physicians. This presents a major challenge for the Medicaid program, which can both reduce costs and improve the quality of care for Medicaid recipients if methods can be developed for shifting the delivery of primary care out of hospital outpatient departments and into community settings.

In addition, this inefficiency in the delivery of care to the uninsured creates the likelihood that if the uninsured were to obtain insurance in a plan that provided controls on hospital utilization similar to the controls in an HMO, then the cost of providing hospital care to this population would very likely not

increase, and might well decrease. We would expect that inpatient utilization rates would increase, but that this increase would be more than counterbalanced by decreased cost on the outpatient side.

4.1 WHO ARE THE UNINSURED IN MASSACHUSETTS?

This section presents estimates of the number of uninsured people in Massachusetts, and presents a brief description of their income distribution and labor force characteristics.

How Many Uninsured People Are There?

The most current data available for estimating the number of uninsured Massachusetts residents comes from the Current Population Survey (CPS) fielded by the Bureau of the Census in March 1982 and March 1983. Each survey included approximately 180,000 respondents nationwide, and approximately 6,000 respondents in Massachusetts. Respondents were asked whether they had been insured at any time during the previous year. The Massachusetts samples have been analyzed by Daniel Friedman from Blue Cross and Blue Shield of Massachusetts and Katherine Swartz from the Urban Institute (1986).

Friedman and Swartz find that in March, 1982, 10% of the Massachusetts population under 65 years old -- approximately 520,000 people -- indicated that they were without insurance during the previous year. This is substantially less than the national average of 15.8% reported from this same CPS survey. The strikingly lower rate of uninsured persons in Massachusetts is primarily a result of three factors: first, an expansive Mecicaid and General Relief Program, which means a higher level of insurance coverage among the very poor than exists in many states; second, an unemployment rate substantially below the

national average, which means fewer people at high risk of being uninsured; and third, an economy with relatively large numbers of union and highly skilled jobs, with the result that a larger number of employed persons are probably insured than is true in many other states.

The estimate of the number of uninsured in Massachusetts increased from 10% of the under 65 population in the March, 1982 survey to nearly 13% of the under 65 population, or 665,000 people, in the March, 1983 survey. As noted briefly in Chapter 3, this increase of approximately 140,000 in the number of uninsured resulted from the convergence of two factors. First, there was a large decrease in the Medicaid caseload resulting from Reagan administration changes in eligibility rules, and in the cities where the caseload declines were studied, many of those leaving the caseload did not obtain other insurance after they lost Medicaid eligibility. (General accounting office, "An Evaluation of the 1981 AFDC Changes: Final Report", 1985). Medicaid cases declined by 30,000 (approximately 80,000 individuals) from March, 1981 to March, 1982 and declined by an additional 25,000 cases (approximately 75,000 indivudals) from March, 1982 to March, 1983. Second, the number of people unemployed increased dramatically -- from 160,000 in March, 1981 to 200,000 in December, 1981, to 230,000 in March, 1982 -- although subsequently the number of people unemployed remained approximately level until March, 1983.

As a result of increased unemployment and decreased Medicaid cases, it makes sense that the number of uninsured people

increased substantially between the 1982 and 1983 surveys. Unfortunately, similar analysis of the 1983 data for the nation is not available to us. However, parallel trends in unemployment and in Medicaid caseload were occurring nationwide, and it seems likely that the number of people reporting that they were uninsured in March, 1983, increased nationwide from the 1982 figure of 15.8%. It is almost certainly the case that in the 1983 the proportion of the Massachusetts population that was uninsured continued to be well below the national average.

Although data on the number of uninsured in 1984 and 1985 are not yet available, it seems likely that the number of uninsured in Massachusetts has decreased since March, 1983. The healthy Massachusetts economy has caused unemployment to plummet from 240,000 in March, 1983 to 175,000 in March, 1984 to under 120,000 in March, 1985. The Medicaid caseload has remained relatively steady since March, 1983. Partially counterbalancing these trends is increased employment in service industries where employees are less likely to be offered insurance. This last point notwithstanding, the combination of decreased unemployment and level Medicaid caseload almost certainly means that there are substantially fewer uninsured in Massachusetts today than the 660,000 that were estimated in the March, 1983 survey.

Finally, it is important to understand the question that is being answered in these surveys. Respondents are asked whether they have had private insurance at any time during the previous year, and whether they have been covered by Medicaid or Medicare

or any other form of insurance of insurance during the previous year. It would make sense that respondents who answer 'no' to each of these questions were uninsured during the entire previous year. However, this seems not to be the case. An analysis by Swartz (1985) compares responses to the CPS survey with responses to other national surveys which have asked about insurance coverage. This analysis shows that the CPS data are consistent with other estimates only if the CPS data are treated as providing estimates of the number of people uninsured at the point in time at which the question was asked. It is unclear why respondents are forgetting (or ignoring) insurance status over the previous twelve month period and reporting instead on their insurance status at the time the CPS survey was fielded, but Swartz's analysis makes it seem extremely likely that this is in fact what they are doing.

If we accept the CPS estimates of 520,000 uninsured in the 1982 survey, and 665,000 in the 1983 survey as 'point in time' estimates, then the number of people uninsured for an entire year will be substantially less. The National Medical Care and Expenditure Survey found that at any point in time during 1977-78 approximately 14% of the under-65 population was uninsured, while only 8.5% of the under-65 population was uninsured for the entire year. If a similar ratio of 'point in time' to 'entire year' uninsured is applicable for Massachusetts in the early 1890's, then we would estimate that there were approximately 310,000 people uninsured for the entire year from March, 1981 to March, 1982 and 400,000 people uninsured for the entire year from March, 1982 to March, 1983.

Labor Force Participation and Income Distribution of the Uninsured

Recently published analyses by Friedman and Swartz of the CPS data indicate that although the unemployed are at high risk of being uninsured (approximately 33% of the unemployed are uninsured compared to 10-13% of the entire population) the large majority of the uninsured are employed. Of those 19 and over, fully 57% were employed at the time of the survey, 15% were homemakers or students, 13% were disabled or retired, and only 13% were unemployed. In addition, many of the uninsured are children, approximately one-third of the uninsured in Massachusetts under age 65 are under age 19.

The poor and near-poor are more likely to be uninsured than those with middle and upper incomes. Friedman and Swartz's analysis of the 1982 CPS data show that 30% of those with family income below the Medicaid income limit were uninsured, compared to 20% of those with incomes between 100% and 200% of the Medicaid income limit, 11% of those between 200% and 400%, and 7% of those above 400%. However, this finding does not mean that the uninsured are comprised exclusively of the poor. While 51% of the uninsured in the 1983 CPS sample had incomes under twice the poverty line, 17% had incomes between two and three times the poverty line, and 32% had incomes of three times the poverty line or above.

4.2 INSURANCE STATUS AND SITE OF HOSPITALIZATION

Boston City Hospital and other municipal hospitals in Massachusetts see their mission, in part, as being hospitals of last resort. The concentration of bad debt and free care at these hospitals reflects their mission. As is shown in Table 4-1, although municipal hospitals account for only 9.5% of total hospital costs in Massachusetts, they provide over 28% of the services that are bad debt and free care, and approximately 14% of the services provided to Medicaid recipients.

Municipal hospitals, however, are not the only institutions that serve disproportionate shares of the poor. Table 4-2 shows the percentage of each hospital's services which are BDFC, averaged over the 1980 to 1984 time period to smooth out year to year fluctuations. As can be seen there, within many of the hospital service areas there is substantial variation among hospitals in BDFC percentage. The widest variations are in the metropolitan Boston area, where Carney, St. Margaret's, Brigham and Women's, and New England Medical Center provide significantly greater than average percentages of BDFC, and hospitals such as University, Deaconness, and New England Baptist provide substantially less than average BDFC. Wide variations exist in other markets as well: for example, in Springfield, Baystate is the dominant provider of care for all payors, but provides an even larger percentage of the care delivered to the poor; on the North Shore, Union of Lynn and Lynn Hospitals provide significantly more BDFC than other hospitals in their service area. These data support what

TABLE 4-1

TOTAL COSTS, BAD DEBT/FREE CARE COSTS, AND SERVICE TO MEDICAID RECIPIENTS, BY MUNICIPAL HOSPITAL STATUS.

Type of Hospital	Total Costs	Bad Debt/[a] Free Care Costs	Medicaid[b] Patient Care Costs
Boston City	2.8%	21.4%	8.6%
Worcester City	0.8%	1.6%	1.1%
Cambridge City	0.7%	2.0%	1.1%
Other Municipals	5.2%	3.3%	3.5%
Municipals, Totals	9.5%	28.3%	14.3%
Non-Municipals	90.5%	71.7%	85.7%
TOTAL	100%	100%	100%

(a) Average figures for FY'80-84; Source RS (401 & 403 for 80-81. MAC reports for 82-84; see Appendix B for details.

(b) Figures for 84 only; calculated as Medicaid's share of gross patient service revenue (from the 404 reports) multiplied by the hospital's MAC.

HSA=WESTERN MASS SUBAREA=1

HOSPNAME	AVG BDFC %	AVG HOSP COST	AVG BDFC COST
FRANKLIN COUNTY	0.039	16,436,008	654,683
HILLCREST	0.037	12,393,988	452,001
BERKSHIRE	0.034	41,716,049	1,421,038
FAIRVIEW	0.032	7,472,536	239,491
NORTH ADAMS REGIONAL	0.032	14,850,816	479,500

HSA=WESTERN MASS SUBAREA=2

HOSPNAME	AVG BDFC %	AVG HOSP COST	AVG BDFC COST
ATHOL	0.030	6,378,611	195,096
FARREN MEMORIAL	0.026	7,612,317	212,740
COOLEY/DICKENSON	0.026	21,137,424	561,977

HSA=WESTERN MASS SUBAREA=3

HOSPNAME	AVG BDFC %	AVG HOSP COST	AVG BDFC COST
BAYSTATE	0.060	110396530	6,622,054
MARY LANE	0.053	5,844,226	304,362
HOLYOKE	0.042	27,525,324	1,171,698
MERCY	0.041	34,498,925	1,412,224
WING MEMORIAL	0.041	9,559,854	387,726
NOBLE	0.036	14,534,854	517,047
PROVIDENCE	0.034	20,558,061	714,407

HSA=CENTRAL MASS SUBAREA=1

HOSPNAME	AVG BDFC %	AVG HOSP COST	AVG BDFC COST
BURBANK	0.043	24,174,848	1,041,614
CLINTON	0.038	6,053,823	229,631
NASHOBA COMMUNITY	0.034	9,760,268	336,938
HENRY HEYWOOD	0.026	13,529,181	355,307
LEOMINSTER	0.026	14,995,579	381,061

HSA=CENTRAL MASS SUBAREA=2

HOSPNAME	AVG BDFC %	AVG HOSP COST	AVG BDFC COST
WORCESTER CITY	0.097	27,681,271	2,761,651
ST VINCENT	0.034	60,559,296	2,095,311
U MASS MED CTR	0.034	73,358,094	2,433,049
WORCESTER HAHNEMANN	0.033	25,466,292	837,456
WORCESTER MEMORIAL	0.031	49,488,341	1,538,456
FAIRLAWN	0.027	9,123,915	251,015
HOLDEN DISTRICT	0.027	7,501,267	204,640

HSA=CENTRAL MASS SUBAREA=3

HOSPNAME	AVG BDFC %	AVG HOSP COST	AVG BDFC COST
HARRINGTON MEMORIAL	0.043	13,752,153	585,714
MILFORD/WHITINSVILLE	0.043	23,628,782	1,008,366
HUBBARD REGIONAL	0.037	10,009,721	380,997

HSA=MERRIMAC VALLEY SUBAREA=1

HOSPNAME	AVG BDFC %	AVG HOSP COST	AVG BDFC COST
ANNA JAQUES	0.059	17,406,938	1,043,754
AMESBURY	0.047	6,372,122	300,326
HALE/HAVERHILL	0.027	17,080,644	446,826

HSA=MERRIMAC VALLEY SUBAREA=2

HOSPNAME	AVG BDFC %	AVG HOSP COST	AVG BDFC COST
BON SECOURS	0.038	30,471,628	1,186,838
LAWRENCE GENERAL	0.036	34,987,863	1,282,155

HSA=MERRIMAC VALLEY SUBAREA=3

HOSPNAME	AVG BDFC %	AVG HOSP COST	AVG BDFC COST
ST JOSEPHS	0.032	23,110,691	716,592
LOWELL	0.032	24,799,102	809,901
ST JOHNS OF LOWELL	0.022	26,167,946	588,353

HSA=GREATER BOSTON SUBAREA=1

HOSPNAME	AVG BDFC %	AVG HOSP COST	AVG BDFC COST
BOSTON CITY	0.395	92,580,800	36,787,400
ST MARGARETS	0.086	16,711,561	1,479,844
CARNEY	0.074	52,517,608	3,934,126
BRIGHAM/WOMENS	0.065	166650811	10,968,578
NEW ENGLAND MEDICAL CENTER	0.057	118446584	6,621,899
CHILDRENS	0.049	99,478,148	4,871,258
MASS EYE AND EAR	0.047	33,274,759	1,575,143
WINTHROP	0.045	9,788,689	389,092
MASS GENERAL	0.040	228171476	9,191,146
ST ELIZABETHS	0.040	68,878,570	2,727,425
BETH ISRAEL	0.037	99,928,967	3,576,393
FAULKNER	0.035	39,073,928	1,357,601
UNIVERSITY	0.034	72,080,651	2,462,457
NEW ENGLAND DEACONESS	0.021	88,514,450	1,916,072
HAHNEMANN OF BOSTON	0.016	5,805,028	101,299
HUNTINGTON GENERAL	0.016	7,300,017	128,497
BROOKLINE	0.012	8,436,439	98,404
NEW ENGLAND BAPTIST	0.011	36,947,022	415,248

TABLE 4-2 HOSPITAL BAD DEBT/FREE CARE BY HSA SUBAREA 1980-1984 (cont'd)

HSA=GREATER BOSTON SUBAREA=2

HOSPNAME	AVG BDFC %	AVG HOSP COST	AVG BDFC COST
CAMBRIDGE CITY	0.139	23,853,561	3,376,007
SOMERVILLE	0.068	17,265,893	1,183,962
CHOATE/SYMMES	0.057	28,766,829	1,662,219
MOUNT AUBURN	0.035	52,781,418	1,819,075
EMERSON	0.034	28,014,105	961,939
SANCTA MARIA	0.024	14,794,843	370,490
CENTRAL	0.024	5,986,990	143,269
WINCHESTER ACUTE	0.021	21,641,272	443,734

HSA=GREATER BOSTON SUBAREA=3

HOSPNAME	AVG BDFC %	AVG HOSP COST	AVG BDFC COST
MARLBOROUGH	0.049	18,625,409	897,071
WALTHAM	0.031	40,135,289	1,244,131
LEONARD MORSE	0.030	31,542,548	934,783
FRAMINGHAM UNION	0.029	44,120,157	1,290,256
NEWTON/WELLESLEY	0.023	47,551,438	1,114,907
GLOVER MEMORIAL	0.020	10,074,360	200,399

HSA=GREATER BOSTON SUBAREA=4

HOSPNAME	AVG BDFC %	AVG HOSP COST	AVG BDFC COST
NORWOOD	0.026	38,894,536	1,015,534

HSA=GREATER BOSTON SUBAREA=5

HOSPNAME	AVG BDFC %	AVG HOSP COST	AVG BDFC COST
QUINCY CITY	0.042	34,380,512	1,422,372
SOUTH SHORE	0.031	40,547,089	1,267,878
MILTON	0.028	15,120,097	411,020

HSA=SOUTHEASTERN SUBAREA=1

HOSPNAME	AVG BDFC %	AVG HOSP COST	AVG BDFC COST
MORTON	0.043	25,035,200	1,082,871
ST LUKES OF MIDDLEBORO	0.038	7,420,257	281,650
STURDY MEMORIAL	0.029	22,617,940	663,264

HSA=SOUTHEASTERN SUBAREA=2

HOSPNAME	AVG BDFC %	AVG HOSP COST	AVG BDFC COST
BROCKTON	0.053	41,958,524	2,305,612
JORDAN	0.047	18,399,556	856,732
CARDINAL CUSHING	0.044	30,362,342	1,334,386

HSA=SOUTHEASTERN SUBAREA=2

HOSPNAME	AVG BDFC %	AVG HOSP COST	AVG BDFC COST
GODDARD MEMORIAL	0.031	28,800,105	900,470

HSA=SOUTHEASTERN SUBAREA=3

HOSPNAME	AVG BDFC %	AVG HOSP COST	AVG BDFC COST
ST LUKES OF NEW BEDFORD	0.045	43,005,738	1,951,324
TOBEY	0.044	9,027,062	401,313
ST ANNES OF FALL RIVER	0.035	20,103,535	705,125
PARKWOOD/UNION OF NB	0.025	8,201,495	214,677
CHARLTON	0.022	47,305,110	1,036,977

HSA=SOUTHEASTERN SUBAREA=4

HOSPNAME	AVG BDFC %	AVG HOSP COST	AVG BDFC COST
NANTUCKET	0.041	3,072,449	129,746
FALMOUTH	0.033	12,545,062	412,557
CAPE COD	0.024	36,945,620	927,659

HSA=NORTH SHORE SUBAREA=18

HOSPNAME	AVG BDFC %	AVG HOSP COST	AVG BDFC COST
BEVERLY	0.043	31,525,831	1,350,712
ADDISON GILBERT	0.042	15,176,802	650,001
HUNT MEMORIAL	0.025	15,889,017	408,744

HSA=NORTH SHORE SUBAREA=19

HOSPNAME	AVG BDFC %	AVG HOSP COST	AVG BDFC COST
UNION OF LYNN	0.082	26,372,764	2,150,727
LYNN	0.058	40,533,220	2,365,680
NORTH SHORE CHILDRENS	0.040	8,636,312	372,032
SALEM	0.035	47,841,906	1,688,018
JB THOMAS	0.033	13,776,552	451,415
MARY A ALLEY	0.016	2,507,164	37,623

HSA=NORTH SHORE SUBAREA=20

HOSPNAME	AVG BDFC %	AVG HOSP COST	AVG BDFC COST
MELROSE/WAKEFIELD	0.053	27,790,589	1,455,417
WHIDDEN MEMORIAL	0.037	23,061,513	862,381
MALDEN	0.033	30,879,446	1,020,444
NEW ENGLAND MEMORIAL	0.028	35,286,741	985,209
LAWRENCE MEMORIAL	0.011	23,279,803	256,830

anyone who works in the health care system knows: the poor get their hospital care at different sites than the non-poor.

However, the extent to which site of care is influenced by insurance status is not clear from this aggregate data. BCH and many of the hospitals with high bad debt/free care percentages are located in poor neighborhoods. Part of the reason why they have a poor payor mix is that patients who live close to them are poor. To the extent that most of the explanation for the poor payor mix is residential, one would not conclude that insurance status, per se, has an effect on where people get their hospital care. Understanding the effects of insurance status on where people obtain inpatient care is the main task of this section.

Data and Methods

The 1982 hospital discharge data collected by the Rate Setting Commission are used for this analysis. This data base contains one record for each inpatient discharge in hospital FY'82 from 108 acute hospitals (952,345 records in total). Appendix E provides a detailed description of the data base and the methodology.

These discharge data are used to construct profiles on where the residents of each zipcode in the state get their hospital care, and to estimate whether insurance status has an effect on the site of hospitalization. The discharge data contains, among other elements, variables indicating the zipcode of patient residence, the hospital of discharge, the expected payor source, the principal admitting diagnosis, and the age and sex of the patient. These data are used to construct distributions of the

hospitals used by the residents of a zipcode who obtain inpatient care. These distributions are constructed separately by expected payor source, hospital service used (medical/surgical vs. maternity), and, within hospital service, by age group (see Appendix E for details).

To the extent that the distribution of hospitals used by the residents from a given zipcode with private insurance differs significantly from the distributions for those with Medicaid or who are uninsured, then we have a suggestion that insurance status (or some characterstic associated with it) affects where an individual obtains hospital care.

The two hypothetical examples in Table 4-3 should clarify this description. The community 'SAMETOWN' in Table 4-3a is a community in which the distribution of where people get their hospital care is similar for the privately insured and for those with Medicaid or with no insurance. In this example, 43% of all those 15 to 64 year olds living in SAMETOWN who were hospitalized in the medical/surgical service were hospitalize at Hospital 1. That is, Hospital 1 has a 43% market share among the 15 to 64 year old medical/surgical market in SAMETOWN. In SAMETOWN this market does not vary significantly by payor source: approximately 43% of each payor class from SAMETOWN uses Hospital 1. Similarly, the market shares for Hospital 2 and the other hospitals serving SAMETOWN do not vary much by the payor classes.

TABLE 4-3(a)

HYPOTHETICAL DISTRIBUTIONS OF SITE OF HOSPITAL CARE FOR SAMETOWN RESIDENTS, 15-64 YEAR OLDS, MEDICAL/SURGICAL SERVICE.

	Type of Insurance			
	Blue Cross/ Commercial	Medicaid	Uninsured	Ratio (a)
Hospital 1	43%	45%	42%	1.0
Hospital 2	26%	24%	27%	1.0
Hospital 3	10%	12%	12%	1.2
Hospital 4	8%	8%	7%	0.9
Hospital 5	6%	5%	4%	0.8
All other hospitals	7%	6%	8%	1.0
TOTAL	100%	100%	100%	
Total Number of Discharges	1500	160	130	

a) This is the ratio of the hospital's market share among Medicaid recipients and the uninsured (combined) to the hospital's market share among the privately insured.

TABLE 4-3(b)

HYPOTHETICAL DISTRIBUTIONS OF SITE OF HOSPITAL CARE FOR NOTSAME TOWN RESIDENTS, 15-64 YEAR OLDS, MEDICAL/SURGICAL SERVICE.

	Type of Insurance			
	Blue Cross/ Commercial	Medicaid	Uninsured	Ratio
Hospital 1	46%	42%	40%	0.9
Hospital 2	28%	24%	18%	0.8
Hospital 3	6%	20%	30%	8.2
Hospital 4	9%	6%	5%	0.6
Hospital 5	5%	4%	3%	0.6
All other hospitals	6%	4%	4%	0.6
TOTAL	100%	100%	100%	
Total Number of Discharges	1500	160	130	

These relationships are summarized by the figures in the 'ratio' column. The ratio is a measure of the extent to which the behavior of the uninsured and Medicaid residents is similar to the behavior of the Blue Cross and commerially insured. In hospitals in which the market share is similar among the privately insured and the poor, the ratio will be close to 1.0; in hospitals whose market share among the poor is significantly higher than among the privately insured, the ratio will be greater than 1.0; and in hospitals which drew disproportionately among the privately insured, the ratio will be below 1.0. The ratio for each hospital which serves SAMETOWN is close to 1.0, indicating that each hospital's market share among the poor is similar to its market share among the privately insured.

In contrast, the example in Table 4-3b shows a community (NOTSAME TOWN) in which insurance status is strongly related to where people get their hospital care. In this community 20% of the Medicaid recipients, 30% of the uninsured, but only 6% of the Blue Cross and commercially insured use Hospital 3. The average market share for Hospital 3 among Medicaid recipients and the uninsured is four times larger than its market share among the privately insured. The 'excess' Medicaid and uninsured patients at Hospital 3 are offset by lower market shares (relative to the market shares among the privately insured) at the other hospitals serving NOTSAME TOWN.

To the extent that the distributions of hospital utilization in most communities of the state resemble the distributions in SAMETOWN, we would conclude that the presence and type of

insurance has little effect on where an individual gets hospital care. Conversely, to the extent that the distributions resemble the distributions in NOTSAME TOWN, we would conclude that insurance status, or some characteristic associated with it (other than age, community of residence, and hospital service required) affects which hospital an individual uses.

These data will also be analyzed with the hospital, rather than the zipcode, as the unit of analysis. This analysis provides estimates of the extent to which each hospital consistently draws disproportionately larger or smaller market shares among the uninsured and Medicaid recipients than among the privately insured in the communities which it serves.

Hypothetical examples are shown in Table 4-4. For most of the communities in the service area of Hospital 1, approximately equal proportions of each payor type use the hospital. For example, 53% of the privately insured residents of community 1 who are hospitalized use Hospital 1, 55% of the Medicaid recipients in community 1 who are hospitalized use Hospital 1, and 52% of the uninsured residents of community who are hospitalized use Hospital 1. The market share of Hospital 1 varies by community (in general, the closer the community to the hospital, the larger the proportion using the hospital), but within each community there is little differentiation in utilization by payor source. This information is summarized in the ratio column where the fact that the entries are all close to 1.0 indicates that Hospital 1's market share is similar among the poor and the privately insured in each town that it serves.

TABLE 4-4

HYPOTHETICAL MARKET SHARES FOR TWO HOSPITALS, BY COMMUNITY AND TYPE OF INSURANCE, 15 TO 64 YEAR OLDS, MEDICAL/SURGICAL SERVICE.

HOSPITAL 1

TYPE OF INSURANCE

Community	Blue Cross/ Commercial	Medicaid	Uninsured	a) Ratio	Number of Discharges at Hospital
Community 1	53%	55%	52%	1.0	5,000
Community 2	36%	35%	38%	1.0	1,000
Community 3	31%	35%	34%	1.1	2,000
Community 4	25%	23%	23%	0.9	1,000
Community 5	15%	7%	19%	1.2	300

HOSPITAL 2

TYPE OF INSURANCE

Community	Blue Cross/ Commercial	Medicaid	Uninsured	a) Ratio	Number of Discharges at Hospital
Community 1	53%	75%	85%	1.5	5,000
Community 2	28%	46%	50%	1.7	1,000
Community 3	20%	32%	29%	1.5	2,000
Community 4	15%	13%	23%	1.2	1,000
Community 5	9%	30%	32%	3.4	300

(a) This is the ratio of the hospital's market share among Medicaid recipients and the uninsured (combined) to the hospital's market share among the privately insured.

In contrast, for Hospital 2 the market share within many of the communities it serves varies markedly by payor class: in each of the communities served by Hospital 2, the market share of the hospital among the uninsured and Medicaid recipients is 1.2 to 3.4 times larger than the market share among the privately insured.

Since it would be tedious to examine a table similar to table 4-4 for each of the 108 acute care hospitals in the data set, it is important to develop a summary indicator of the extent to which insurance status is related to the probability that an individual uses a given hospital.

The measure used here is constructed by calculating a weighted average of the hospital market shares in each community that it serves. This weighted average is constructed separately for each expected payor source. In this calculation the weight for a given community is equal to the percentage of the hospital's total business that comes from that community. Note that the market shares in communities on which the hospital is highly dependent have more weight in these calculations than the market shares in communities which send few patients to the hospital (that is, few relative to the total number of patients at the hospital)*.

*It is important to note that the weighting process used here will result in estimates that show smaller effects of insurance status on where people get their hospital care than would be estimated with most alternative methods for defining a hospital's service area. If, for example, service areas were defined geographically -- e.g. as the areas contiguous (or within some travel time) of a hospital -- than the average market share among the uninsured in the 'service area" of referral hospitals within urban areas would be even lower than the percentage calculated according to the weighted service area approach outlined above. This is because the weighted service area approach recognized that the hospital attracts patients from the suburbs, and, in a sense, does not 'penalize' the hospital for this.

Illustrative calculations are shown in Table 4-5 for the two hospitals for which hypothetical data was shown in Table 4-4. These calculations show that Hospital 1 had, on average, a 42% market share among the privately insured in its weighted service area, and that the hospital's market share was virtually the same among Medicaid recipients and the uninsured. In contrast, Hospital 2 had a 38% market share among the privately insured, compared to a 55% average market share among Medicaid recipients, and a 61% average market share among the uninsured. These hypothetical data demonstrate that, controlling for age and location of residence, the poor are more likely than the non-poor to use Hospital 2.

Caveats

The accuracy of these analyses depends heavily on the accuracy and consistency with which the expected payor source variable is coded. As a check on the accuracy of this variable, we have compared, by hospital, the distribution of patient days as measured by the discharge data with the distribution of patient days reported on the RSC 403 cost reports. Details of this analysis are reported in Appendix E. The general findings are that there is a high correlation (generally around 0.9) between payor distributions measured from two data sources.

Further, Schedule 5 in the RSC 403 cost report, from which the payor mix data is taken, is not used for reimbursement purposes and is not routinely audited. Conversations with staff at the Rate Setting Commission suggest that in those instances in which the discharge data and cost report data provide conflicting information concerning payor mix at a hospital,

TABLE 4-5

AVERAGE MARKET SHARES, BY PAYOR, FOR TWO HYPOTHETICAL HOSPITALS, 15 TO 64 YEAR OLDS, MEDICAL/SURGICAL SERVICE[a]

TYPE OF INSURANCE

	Blue Cross/ Commercial	Medicaid	Uninsured	Ratio (b)
Hypothetical Hospital 1	42%	44%	42%	1.0
Hypothetical Hospital 2	38%	55%	61%	1.5

(a) Entries are the weighted average market shares.

(b) This is the ratio of the hospital's average market share (across all of the communities it serves) among Medicaid recipients and the uninsured (combined) to the hospital's average market share among the privately insured.

that the discharge data, even though coded on expected payor source, is likely to be more accurate than the cost report data.

There are, however, a small number of hospitals for which the discharge data provide clearly unreasonable estimates concerning the distribution of expected payor source. In two cases -- Boston City Hospital and Massachusetts General Hospital -- we make adjustments to the data to align the expected payor field with the known distribution of payors in the hospital. At BCH 40% of the days in the discharge data are coded as Medicaid and 25% are coded as self pay; in contrast, the cost report data shows approximataly 33% Medicaid and 33% self-pay. Conversations with BCH financial staff confirm that the cost report payor distribution is the correct one, and we have adjusted the BCH discharge data to mirror the payor distributions in the cost report (see Appendix E for details. Further, tables similar to the tables in the text but based on the unadjusted data are shown in Appendix F). At MGH the probem is simpler: the discharge data apparently have inverted a number of expected payor codes. Once again, the adjustment process used is described in Appendix E.

The discharge data does not provide any information concerning who receives free care, but rather provides an indication of whether or not the patient is 'self-pay'. Since we will want ultimately to draw conclusions about the extent to which the uninsured poor have access to hospital care, we would prefer to have self-paying patients who do pay distinguished from those who receive free care, but this is unfortunately not

possible. However, the analysis in Appendix E indicates there is a high correlation between the proportion of a hospital's days which are self-pay and the proportion of the hospital's gross revenue which is bad debt and free care. That is, hospitals which have relatively high proportions of self-payors are, for the most part, hospitals which generate large amounts of bad debt or free care. Further, self pay days account for 3.8% of the total days in the discharge data; as will be argued in Section 4.3, approximately 3.2% of inpatient charges are provided as free care or written off to bad debt. Thus the count of self pay days apparently includes some patients who do end up paying for their care, but a substantial proportion of self-pay days are likely to be days which generate bad debt or are provided as free care.

Finally, due to data limitations, this analysis is unable to control for, or demonstrate the effects of, an individual's racial or ethnic background on site of hospitalization. To the extent that Blacks and/or Hispanics receive care in different sites than Anglos, and to the extent that Blacks and Hispanics are more likely to be Medicaid patients and/or uninsured than the Anglos, then some of the apparent effects of insurance status on site of care may in fact be the result of racial or ethnic background.

RESULTS

As would be expected from the data on BDFC in Table 4-2, there are some communities in the state in which insurance status is strongly related to site of hospitalization, and

other communities in which the relationship between insurance status and site of hospitalization is weak. Examples of each type of community are shown in Table 4-6a to 4-6d for 15 to 64 year olds hospitalized with a medical/surgical principal diagnosis.

In the South End of Boston, for example, insurance status is strongly related to site of hospitalization: 74% of the uninsured residents of the South End who are hospitalized are hospitalized at BCH; 62% of the Medicaid recipients in the South End who are hospitalized are hospitalized at BCH; in contrast only 25% of the Blue Cross and commercially insured residents of the South End who are hospitalized are hospitalized at BCH.

The "extra" Medicaid and uninsured patients at BCH are balanced by fewer Medicaid and uninsured patients at other hospitals which serve the South End. For example, 15% of the privately insured residents of the South End who are hospitalized are hospitalized at University Hospital, compared to 11% of the Medicaid recipients and 6% of the uninsured. Particularly striking is the concentration of the poor at a relatively small number of hospitals: Table 4-6 lists separately any hospital which accounts for at least 1% of the South End discharges--the "All Other Hospital" category accounts for 22% of the privately insured, but only 5% of the Medicaid discharges, and 4% of the uninsured.

Similar patterns, though somewhat less strong in magnitude, are found for the residents of downtown Worcester (see Table

TABLE 4-6(a)

DISTRIBUTION OF SITE OF HOSPITAL CARE FOR RESIDENTS OF THE SOUTH END (BOSTON), 15-64 YEAR OLDS, MEDICAL/SURGICAL SERVICE

HOSPITAL	TYPE OF INSURANCE			RATIO[a]
	Blue Cross/ Commercial	Medicaid	Uninsured	
Boston City	25%	62%	74%	2.7
University	15%	11%	6%	0.6
New England Medical Center	10%	8%	8%	0.8
Mass. General	13%	4%	4%	0.3
Brigham/Womens	7%	6%	3%	0.6
Beth Israel	6%	4%	3%	0.6
N.E. Deaconess	3%	0.5%	0%	0.1
All other hospitals	22%	5%	4%	0.2
TOTAL	100%	100%	100%	

(a) This is the ratio of the hospital's market share among Medicaid recipients and the uninsured (combined) to the hospital's market share amongn the privatel insured.

TABLE 4-6(b)

DISTRIBUTION OF SITE OF HOSPITAL CARE FOR RESIDENTS OF DOWNTOWN WORCESTER (ZIP CODE 01610), 15-64 YEAR OLDS, MEDICAL/SURGICAL SERVICE

HOSPITAL	TYPE OF INSURANCE			RATIO[a]
	Blue Cross/ Commercial	Medicaid	Uninsured	
Worcester City	18%	39%	56%	2.5
St. Vincent	32%	15%	27%	0.6
Worcester Memorial	18%	10%	6%	0.5
Doctors of Worcester	9%	17%	0%	1.4
Worcester Hahnemann	9%	6%	5%	0.6
U Mass Med. Center	7%	7%	5%	0.9
Fairlawn	6%	4%	0.5%	0.5
All other hospitals	2%	1%	1%	0.5
TOTAL	100%	100%	100%	

TABLE 4-6(c)

DISTRIBUTION OF SITE OF HOSPITAL CARE FOR RESIDENTS OF THE LAWRENCE (ZIP CODE 01841) 15-64 YEAR OLDS, MEDICAL/SURGICAL SERVICE

HOSPITAL	TYPE OF INSURANCE			RATIO
	Blue Cross/ Commercial	Medicaid	Uninsured	
Lawrence General	54%	54%	61%	1.0
Bon Secours	33%	31%	31%	1.0
Lahey/Brooks	2%	2%	1%	0.8
Brigham/Womens	2%	2%	2%	1.0
Mass. General	1%	1%	0.8%	1.0
All other hospitals	8%	9%	5%	1.0
TOTAL	100%	100%	100%	

TABLE 4-6(d)

DISTRIBUTION OF SITE OF HOSPITAL CARE FOR RESIDENTS OF ARLINGTON, 15-64 YEAR OLDS, MEDICAL/SURGICAL SERVICE

HOSPITAL	TYPE OF INSURANCE			RATIO
	Blue Cross/ Commercial	Medicaid	Uninsured	
Choate/Symmes	32%	34%	30%	1.0
Mount Auburn	13%	4%	10%	0.5
Sancta Maria	10%	18%	3%	1.1
Mass. General	5%	5%	8%	1.2
St. Elizabeth	4%	3%	5%	1.0
Brigham/Womens	3%	4%	2%	1.0
Lahey/Brooks	3%	3%	1%	0.6
Mass. Eye & Ear	3%	0%	6%	1.0
New England Deaconess	3%	3%	1%	0.6
Cambridge City	2%	9%	3%	2.8
Beth Israel	2%	2%	1%	0.7
Winchester Acute	2%	0.9%	2%	0.6
Somerville	2%	2%	1%	0.7
All other hospitals	15%	14%	28%	1.3
TOTAL	100%	100%	100%	

4-6b): 56% of the uninsured, 39% of the Medicaid recipients, and only 18% of the Blue Cross and commercially insured used Worcester City Hospital. In the South End and in Downtown Worcester, as in many other neighborhoods across the state, insurance status, or some characteristic associated with it, is strongly related to site of hospitalization.

In contrast, in Lawrence there is little relationship between insurance status and type of hospitalization. (See Table 4-6c). There is little variation by expected payor source in the proportion of Lawrence residents using each of the hospitals that serve the community.

Our final example, the town of Arlington, is a community with an intermediate strength relationship between insurance status and site of hospitalization (see Table 4-6d). Medicaid recipients receive care in largely similar sites as the privately insured (the suggestion of "excess" Medicaid patients at Sancta Maria and "missing" Medicaid patients at Mount Auburn results in part from small sample sizes). However, the uninsured are somewhat less likely than the privately insured to receive care at any of the hospitals that serve a substantial number of Arlington residents. The 28% of the uninsured at "All Other Hospitals" reflects, in part, a concentration of uninsured patients at BCH.

HOSPITAL BASED ANALYSIS

The preceding analysis demonstrates that within some communities of the Commonwealth insurance status, or some characteristic associated with it, affects site of hospitalization. This section turns the analysis around, making the hospital, rather than the community, the unit of analysis. We investigate the extent to which hospitals serve consistently larger or smaller proportions of Medicaid recipients and the uninsured than of the privately insured from communities in their service areas.

As is shown in Table 4-7a, Medicaid recipients and the uninsured are much more likely than the Blue Cross and commercially insured to get their hospital care at BCH, regardless of where they live. In the primary service areas of BCH, such as North and South Dorchester, Roxbury, South Boston, and the South End, BCH is the site of hospitalization for 50-70% of the uninsured and 30-40% of the Medicaid recipients who are admitted as patients, but only 10-20% of the Blue Cross and commercially insured. Clearly, the privately insured have options other than BCH and generally choose them.

Outside the primary service area for BCH -- in such areas as Jamaica Plain, Back Bay, East Boston, Hyde Park, Roslindale, and Quincy--substantial portions of Medicaid recipients and the uninsured (up to 25%) obtain their care at BCH even though hardly any (1-3%) of the privately insured obtain their care at BCH. On average, 58% of the uninsured in BCH's weighted service

TABLE 4-7(a)

MARKET SHARES FOR BOSTON CITY HOSPITAL, BY COMMUNITY AND TYPE OF INSURANCE, 15 to 64 YEAR OLDS, MEDICAL/SURGICAL SERVICE

COMMUNITY	TYPE OF INSURANCE			RATIO
	Blue Cross/ Commercial	Medicaid	Uninsured	
South End	25%	62%	74%	2.7
Roxbury	19%	39%	63%	2.6
North Dorchester	12%	43%	69%	4.6
South Dorchester	10%	34%	57%	4.6
South Boston	8%	31%	56%	4.8
Jamaica Plain	3%	15%	26%	5.9
Back Bay	2%	20%	21%	11.2
East Boston	2%	7%	18%	4.9
Roslindale	0.8%	9%	17%	16.3
Hyde Park	1%	7%	18%	11.7
Brighton/Allston	0.8%	5%	4%	5.7
Chelsea	0.8%	2%	5%	3.4
Quincy	0.4%	6%	9%	19.4
Winthrop	0%	2%	7%	
Brookline	0.2%	2%	4%	14.1
Weighted Average, All Towns in Service Area	15%	38%	58%	3.0

TABLE 4-7(b)

MARKET SHARES FOR CAMBRIDGE CITY HOSPITAL, BY COMMUNITY AND TYPE OF INSURANCE SOURCE, 15 TO 64 YEAR OLDS, MEDICAL/SURGICAL SERVICE

COMMUNITY	EXPECTED PAYOR SOURCE			RATIO
	Blue Cross/ Commercial	Medicaid	Uninsured	
Cambridge	21%	46%	53%	2.4
Somerville	1%	17%	26%	2.2
Arlington	2%	9%	3%	2.8
Belmont	2%	0%	3%	0.9
Medford	2%	3%	2%	1.5
Back Bay	2%	0.3%	1%	0.5
Winthrop	1%	0%	0%	0.0
Weighted Average, All Towns in Service Area	15%	28%	35%	1.9

TABLE 4-7(c)

MARKET SHARES FOR WORCESTER CITY HOSPITAL, BY COMMUNITY AND TYPE OF INSURANCE SOURCE, 15 TO 64 YEAR OLDS, MEDICAL/SURGICAL SERVICE

COMMUNITY	TYPE OF INSURANCE			RATIO
	Blue Cross/ Commercial	Medicaid	Uninsured	
Worcester(01610)	18%	39%	56%	2.5
Worcester (01609)	15%	39%	45%	2.8
Webster Square	21%	28%	46%	1.5
Worcester (01602)	14%	21%	28%	1.7
Worcester (01605)	8%	14%	20%	2.1
Worcester (01604)	8%	13%	17%	1.7
Greendale	7%	18%	10%	1.9
Auburn	6%	11%	6%	1.3
Milbury/Sutton	4%	5%	6%	1.3
Shrewsbury	2%	0%	7%	2.0
Dudley/Webster	1%	7%	5%	5.7
Holland/Southbridge	2%	3%	2%	1.6
Clinton	1%	0.6%	1%	0.7
Weighted Average, All Towns in Service Area	12%	21%	30%	2.0

area obtain their care at BCH, compared to 38% of the Medicaid recipients and 15% of the privately insured. These patterns demonstrate clearly that, controlling for age, location of residence, and hospital service used, the uninsured and Medicaid recipients are much more likely than the privately insured to use BCH.

Similar patterns, though somewhat less strong, are found for Cambridge City and Worcester City Hospitals (see Tables 4-7b and 4-7c). Controlling for place of residence, the uninsured and Medicaid recipients in the service area of Cambridge City are approximately twice as likely as the privately insured to obtain their hospital care at the hospital; a similar ratio exists for Medicaid recipients and uninsured in the service area of Worcester City.

Also shown are two of the many possible examples of hospitals in which market shares are much lower for the uninsured and Medicaid recipients than for the privately insured. The first example, shown in Table 4-7d, is a Boston referral hospital that does not have a large market share, even among the privately insured, in any of the communities is serves. Nevertheless, the market share is, on average, approximately twice as large among the privately insured than among Medicaid recipients and the uninsured. Further, there is a sharp differentiation in market shares among the poor: Medicaid recipients are approximately twice as likely to use this hospital as the uninsured.

TABLE 4-7(d)

MARKET SHARES FOR INNER CITY "STARSHIP" REFERRAL HOSPITAL, BY COMMUNITY AND TYPE OF INSURANCE SOURCE, 15 TO 64 YEAR OLDS, MEDICAL/SURGICAL SERVICE

COMMUNITY	TYPE OF INSURANCE			RATIO
	Blue Cross/ Commercial	Medicaid	Uninsured	
South End	15%	11%	6%	0.6
Roxbury	11%	9%	4%	0.4
Back Bay	12%	5%	4%	0.4
South Boston	10%	5%	4%	0.5
North Dorchester	9%	6%	2%	0.5
South Dorchester	7%	6%	2%	0.6
Plymouth	5%	2%	3%	0.5
Marshfeild	4%	10%	5%	2.1
Boston/Hyde Park	4%	2%	2%	0.4
Boston/Jamaica Plain	4%	3%	2%	0.7
Milton	3%	24%	3%	4.6
Braintree	3%	4%	0%	0.8
Brookline	3%	7%	3%	1.4
Weymouth	3%	2%	3%	1.0
Winthrop	3%	6%	0%	0.9
Weighted Average, All Towns in Service Area	6.7%	4.6%	2.0%	0.54

TABLE 4-7(e)

MARKET SHARES FOR UP-SCALE MINOR TEACHING HOSPITAL, BY COMMUNITY AND TYPE OF INSURANCE SOURCE, 15 TO 64 YEAR OLDS, MEDICAL/SURGICAL SERVICE

COMMUNITY	TYPE OF INSURANCE			RATIO
	Blue Cross/ Commercial	Medicaid	Uninsured	
Belmont	31%	33%	32%	1.3
Watertown	26%	30%	19%	0.9
Cambridge	24%	14%	9%	0.5
Lexington	17%	4%	14%	0.6
Arlington	13%	4%	10%	0.5
Somerville	11%	7%	4%	0.5
Woburn	4%	3%	8%	0.4
Medford	4%	8%	2%	0.4
Stoneham	3%	0%	0%	0.0
Waltham	4%	6%	2%	0.3
Burlington	3%	0%	2%	0.4
Weighted Average, All Towns in Service Area	15%	11.2%	9.4%	0.7

The second example, shown in Table 4-7e, is a medium sized hospital with a teaching program affiliation which has 30% of the privately insured market in Belmont, and 10-25% in Watertown, Cambridge, Lexington, Arlington and Somerville. In Belmont and Watertown, its market share among the uninsured and Medicaid recipients is approximately equal to its market share among the uninsured, but in the other towns in the primary service area, market share among Medicaid recipients and the uninsured is consistently lower than among the privately insured.

Further, as is shown in detail in Appendix G, many of the hospitals with high percentages of BDFC are also hospitals which draw disproportionately large market shares among the uninsured from among the communities they serve. Conversely, many of the hospitals with low percentages of BDFC draw disproportionately low market shares among the uninsured in their service area. It is clear that poor people in many communities of the Commonwealth receive care in different hospitals than the non-poor.

SUMMARY

Hospitals such as Boston City, Cambridge City, Worcester City and others that provide high proportions of BDFC serve large numbers of the poor in part because they serve neighborhoods where large numbers or poor people live. However,

the data presented here indicate that the poor payor mix in these hospitals also resulted from two related factors: first, these hospitals have disproportionately low market shares among the privately insured in their primary service areas; and second, they have disproportionately high market shares among the uninsured outiside their primary service areas (or, conversely, market shares among the uninsured for other hospitals outside their primary service area are disproportionately low).

It is clear that insurance status has a substantial effect on where an individual obtains inpatient hospital care. It is much less clear, however, why these patterns exist. Certainly the reliance of the poor on the municipal hospitals comes in part from the translation of their mission into reality. Variations in the 'accessibility' to the poor of non-municipal hospitals no doubt result both from policies that hospitals can control--such as free care and admissions policies--and from policies that hospitals have relatively little control over, such as patterns of access to primary care and referral patterns of physicians. Further investigation of the sources of these patterns is required, but is beyond the scope of this project.

4.3 INSURANCE STATUS AND RATES OF HOSPITALIZATION

The last section demonstrated that the uninsured and Medicaid recipients use different sites of hospital care than the privately insured, and this evidence supports the proposition that access to hosiptal care does depend on insurance status. However, this evidence does not help answer a central question about the adequacy of access: If an inpatient hospitalization is appropriate and desirable for an individual, to what extent will lack of insurance or Medicaid status make it less likely that the individual will be hospitalized than if the individual has private insurance?

The answer to this question is important for two reasons. First, it provides information which is helpful in understanding the relationship between insurance status and health outcomes. To the extent that the uninsured are less likely than the insured to be hospitalized when such hospitalization is clinically indicated, then their health outcomes are likely to be inferior. This is clearly undesirable from a societal perspective. Second, information about the relative hospitalization rates of the insured and uninsured is needed in order to be able to estimate the effects on hospital utilization and health care costs if the uninsured were to obtain insurance.

Ideally, to answer the question posed above, large samples of privately insured, uninsured, and Medicaid recipients would be monitored and the likelihood of hospitalization for individuals with a given diagnosis would be measured. To the

extent that the privately insured, controlling for diagnosis, complicating conditions, etc., were more likely than the uninsured to be hospitalized in situations where hospitalization was judged to be clinically appropriate, then we would conclude that access for the uninsured was inferior to access for the privately insured, and that hospitalization rates would increase if the uninsured were to obtain insurance.

Unfortunatly, this ideal methodology is extremely expensive to implement. In its place, three methods will be used for estimating differences in hospitalization rates by insurance status. The first method uses survey data to compare the self-reported hospitalization rates for the insured and uninsured. The second method uses aggregate estimates of the numbers of uninsured people and the number of days of care provided to this population to derive rough estimates of hospital use rates for the uninsured, which are then compared to estimates of use rates for Medicaid recipients and for the privately insured. The third method uses the hospital discharge data to examine the types of diagnosis for which insured and uninsured patients are admitted to hospitals, and uses this information to draw inferences about differences in hospitalization rates.

Survey Data on Inpatient Utilization Rates

The most comprehensive national survey information available to estimate the effects of insurance status on hospital utilization rates among the poor is an analysis by

Wilensky and Berk (1982) of the 1977 National Medical Care Expenditure Survey. This survey collected information on types of insurance coverage, use of health services, health care expenditures, sources of payment, and health status indicators from a national sample of approximately 40,000 individuals. In their analysis, Wilensky and Berk define the poor and near poor as those individuals whose family income is less than 125 of the poverty line.

Wilensky and Berk found that the poor and near poor who were uninsured for the entire year were approximately half as likely to be hospitalized as the poor and near poor who were covered by Medicaid for the entire year or who had private insurance. However, this NMCES data also showed that the health status of the uninsured poor and near poor was significantly better than the health status of the insured poor and near poor. This difference in health status largely results from a difference in the age distribution of the insured and uninsured samples: the uninsured poor include no one over 65, while the insured poor does include substantial numbers of the elderly. Lower utilization rates among the uninsured results, in part from a younger age distribution and the resulting better health.

The data shown in Table 4-8 partially control for the effects of health status, and show that hospital utilization rates among the uninsured poor and near poor are between 50-70% of the utilization rates of the poor and near poor who are

TABLE 4-8

PROBABILITY OF HOSPITALIZATION AMONG THE SICK
BY INSURANCE STATUS FOR THE POOR AND NEAR POOR, 1977 a)

Indicator of Health Status	Always Uninsured	All Poor and Near Poor	Ratio b)
More than 8 bed days	.45	.67	67%
Fair or Poor Perceived Health Status	.20	.30	67%
Limited Activity	.18	.40	45%

a) Entries are the probability that an individual with the indicated health status and insurance coverage is hospitalized in a given year.

b) This is a ratio of the probability of hospitalization for a poor or near-poor individual who is always uninsured to the probability of hospitalization for all poor and near-poor with the indicated health status.

Sources: Wilensky and Berk, "Health Care, the Poor, and the Role of Medicaid", (1982), Table 5.

insured and who appear to be of comparable health. Among the uninsured with fair or poor perceived health status, hospital utilization rates were 67% of the utilization rate among the insured. A similar ratio of utilization rates for the insured and uninsured was found for those who spent more than eight days in bed during the year. However, among those with limited activity, hospital utilization rates among the uninsured were approximately 50% of the rates among the insured.

This analysis is biased in the direction of making the "effects" of insurance appear larger than they really are. The populations in the "always uninsured" group is significantly younger than the insured population: 15% of the insured population is over 65, while none of the uninsured are over 65. Since the elderly are much more likely to be hospitalized than the young, if we could control for age, we would expect the differential in hospitalization rates between the insured and the uninsured to decrease. Similarly, the uninsured are more likely than the insured to live in the South, where hospitalization rates for all are lower than in the rest of the nation.

Further, adverse selection issues probably bias the analysis in the direction of making the effects of insurance appear to be larger than they really are. Those who expect to be relatively heavy users of health care are more likely to be insured than those who expect to be light utilizers. While the

controls for health status in Table 4-8 should have partially corrected for this selection bias, they are unlikely to have fully done so. In addition, in states such as Massachusetts, which have highly inclusive medically needy programs, some people will be Medicaid recipients because they have incurred large medical expenses. For these populations it is not the presence of Medcaid which encourages hospitalization, but rather the need for hospitalization which may cause an otherwise uninsured person to become Medicaid eligible. While these biases are clearly present, it is difficult to estimate their magnitude.

Swartz (1983) provides additional analysis data of the 1977 NMCES data and of the 1978 Health Interview Survey Data. This analysis focuses on the "near poor" populations under the age of 65. "Near Poor" in Swartz's analysis is defined as people with household incomes that were between 100% and 400% of the annual income standard used to determine Medicaid eligibility in Massachusetts. Thus, with the exception of the medically needy, Medicaid recipients are excluded from the analysis. Further, unlike Wilensky and Berk's analysis which included respondents from throughout the country, Swartz's analysis of the Health Interview Survey data examines residents of the Northeast; the NMCES analysis examines data for the New England states.

As seen in Table 4-9, estimates from the NMCES data suggest that 7% of the under 65 near poor in New England who were uninsured for the entire year were hospitalized, compared to 10% among the near poor who were insured for the entire year. In this sample of respondents, the health status for the never

TABLE 4-9

Probability of Hospitalization Among the Under-65 Population Population in the Northeast, by Insurance Status

National Medical Care Expenditure Survey
1977, New England Respondents Only

	Insurance Status	
	Always Insured	Never Insured
Probability of Hospitalization (annual)	9.9%	7.0%
Sample Size	659	57

Health Interview Survey, 1978
Northeast Respondents Only

	Insurance Status	
	People with Health Insurance	People without Health Insurance
Probability of Hospitalization (annual)	8.9%	8.5%
Sample Size	1810	260

Source: Swartz, "The Uninsured Near Poor in Massachusetts: A Summary Report, (1983), Tables 10 and 11.

insured appears to be slightly worse than the health status of the "always insured". Therefore, this data suggests that the uninsured near poor, controlling for health status, are hospitalized less than 70% as often as the insured near poor. However, it should be noted that small sample size makes the point estimate extremely imprecise. There are only 57 respondents in the "never insured" category. A 95% confidence interval around the 7% figure stretches from 1% to 13%. Thus, it is not possible to draw strong conclusions using this data.

The Health Interview Survey data shown in the bottom part of Table 4-9, is based on a larger sample, but still not one large enough to reliably estimate differences in the hospitalization rates of the insured and uninsured. This data suggests that hospital utilization rates for the insured and uninsured were nearly identical in 1978. However, a 95% confidence interval around the 8.5% estimate for the hospitalization rate of the uninsured stretches from 5% to 12%, again obviating strong conclusions about the relationship between insurance status and rates of hospitalization for the poor and near poor.

Davis and Rowland (1983) provide additional analysis of the NMCES data which supports the conclusion that hospital utilization is significantly lower for the uninsured than the insured. This analysis shows that in the non-South, for persons under 65, that hospital utilization rates for the uninsured were approximately 70% of the utilization rates of the insured.

In summary, these analyses of NMCES data suggest that the uninsured poor and near poor, controlling for age and health status, are hospitalized approximately 70% as often as the insured poor and near poor. However, most of the analysis is done on a national sample, and analysis of the New England sample suffers from small sample sizes. Further, the survey was not designed in such a way as to allow Massachusetts specific estimates. An even more important caveat is that the data was collected in 1977, and it is possible that relative utilization rates have changed markedly since that time. These data strongly suggest that access to inpatient hospital care for the uninsured poor is worse than access for the insured poor and provides an order of magnitude for the level of difference in utilization.

Aggregate Data on Inpatient Utilization Rates

A second method for estimating the difference in hospital utilization rates between the insured and uninsured uses aggregate data. This aggregate method and its result will be described in this section.

The uninsured are approximately 10% to 13% of the under 65 population. Since the age distribution of the uninsured is similar to the age distribution of the under 65 insured, if hospital utilization rates for the insured and uninsured were equal, then the

uninsured should account for approximately 10% to 13% of the hospital days in the under 65 population. In what follows, an estimate is derived of the proportion of hospital utilization in the under 65 population that is attributable to the uninsured.

It was shown in the last section that approximately 5% of hospital services in Massachusetts generate bad debt or are provided as free care. There is, unfortunately, no readily available data source that separates the amount of inpatient BDFC from the amount of outpatient BDFC. We have obtained this information from 8 hospitals for 1984 or 1985, and these hospitals account for over 50% of statewide BDFC. For these 8 hospitals, the weighted average indicates that approximately 55% of BDFC is generated in inpatient services, and approximately 45% in outpatient services (including the emergency room). This estimate implies that approximately 2.8% of statewide costs are attributable to inpatient BDFC. Our next step is to relate the volume of inpatient BDFC services to the volume of inpatient services delivered to the uninsured.

A study conducted by Dan Friedman of Blue Cross and Blue Shield of Massachusetts reviewed patient accounts at four hospitals in 1981. This study found that, on average, over 90% of BDFC was attributable to accounts in which no insurance payment was received -- that is, only a small part of BDFC was attributable to unpaid copayments and deductibles. Unpublished analysis of this data indicates that this percentage does not

vary by inpatient versus outpatient BDFC -- in both settings over 90% of BDFC is attributable to accounts with no insurance payment. For inpatient services it is reasonable to expect that the hospital will receive some insurance payment for virtually everyone who is insured. Thus, this data suggests that approximately 2.5% (90% of 2.8%) of all hospital services are inpatient services delivered to the uninsured which result in BDFC.

If none of the uninsured paid for their inpatient care, then we would estimate that 2.5% of all hospital services are inpatient services provided to the uninsured. However, we know that hospitals do collect significant amounts of money from the uninsured for inpatient services. This makes sense when we remember that the uninsured are not homogenously poor -- approximately one-third of the uninsured are in families above three times the poverty line. Although it is difficult to derive a precise estimate, a rough estimate is that between 0.5% and 1.0% of all hospital services are inpatient services provided to the uninsured which are paid for by the patient. Combining these services with those that generate BDFC, we estimate that approximately 3.0% to 3.5% of all hospital services are inpatient services provided to the uninsured.

Approximately 78% of all hospital services are inpatient, and approximately 60% of these, or 47% of the total, are provided to the non-Medicare population. Since 3.0% to 3.5% of all services are provided to the uninsured, between 6.5% and 7.4% of all inpatient services for the non-Medicare population

are provided to the uninsured. Since the uninsured comprise 10% to 13% of the under 65 population, it is clear that inpatient utilization rates are lower for the uninsured than for the insured. Taking the extremes of these ranges, these data suggest that inpatient utilization rates for the uninsured are between 50% and 74% of the utilization rates of the insured.

It should be noted that some of the estimates used in the argument presented above may be subject to substantial error, and any such error will change the conclusion suggested that utilization rates for the uninsured are between 50% and 74% of rates for the insured. The estimate of the number of uninsured is imprecise--as noted in Section 4.1, the 10-13% range is apparently a measure of the proportion of people uninsured at a given point in time. Substantially fewer will be uninsured for the entire year. This suggests that the upper end of the 50-74% range is likely to be closer to the truth, but leave a good deal of uncertainty. Second, the percentage of inpatient care delivered to the uninsured which is paid for out-of-pocket is not precisely known. We have assumed that between 15% and 30% of inpatient care for the uninsured is paid for out-of-pocket, but this assumption does not have a strong empirical base.

These caveats notwithstanding, this analysis, like the analysis of survey data, demonstrates that the uninsured are less likely to be hospitalized then the insured, and suggests an order of magnitude for the difference.

Insurance Status and Elective Hospitalization:
Inferences About Relative Hospitalization Rates

A third method for estimating relative inpatient utilization rates examines the types of admissions for which the insured and uninsured are admitted to hospitals. We would expect that financial barriers to access would be much more likely to decrease utilization rates among the uninsured poor for admissions that were primarily elective than for admissions that were emergent.

This appears to be exactly the case. As seen in Table 4-10, 53% of the non-maternity admissions for privately insured patients are coded on the medical recored abstract as "elective", compared only to 32% among admissions for the uninsured. Further, since the uninsured who do pay their bills account for a disproportionate share of the elective procedures, the percentage of "elective " admissions among the uninsured poor and near poor is probably even lower than the 32% figure, although it is hard to reliably estimate how much lower.

If we assume, somewhat arbitrarily, that between 15% and 32% of the admissions for the uninsured poor are elective, and if we assume that the rate of "emergency" admissions per 1,000 uninsured people is equal to the rate per 1,000 insured people, then these data imply that hospitalization rate for the uninsured is between 55% and 70% of the rate for the insured.

The two key assumptions here are first, the 15-32% range on elective admissions for the uninsured, and second, the assumption that the rate of emergency admissions is equal for the insured and uninsured.

TABLE 4-10

Elective Admissions by Insurance Status, FY' 82 (a)

Admission Type	Insurance Status: Blue Cross/ Commercial	Medicaid	Self-Pay
Elective	53%	41%	32%
Emergency/ Urgent	47%	59%	68%
Total	100%	100%	100%
Sample Size	362,626	68,513	39,401

(a) Table excludes newborn discharges and ob/maternity admissions. Coding of elective/emergent/urgent is on discharge abstracts.

Source: FY' 82 case mix data

On the second assumption, there are reasonable arguments both that emergency admission rates are higher and that these rates are lower for the uninsured:

- o higher because deferral of elective care, poorer nutrition, and higher probabilities of accidents shall increase the need for emergency admissions among the uninsured.
- o lower because poorer access to hospital care results in a lower probability of admissions for the uninsured than for the insured even in situations that might be defined as emergency.

In light of these uncertainties, the assumption of equal emergency admission rates for the insured and uninsured appears reasonable.

Summary

In summary, the evidence presented here suggests that the uninsured poor and near-poor are hospitalized between 60% to 70% as often as the insured poor of comparable health status. This is a strong indication that access to hospital care for the uninsured is inferior to access to that care for the insured. Further, this data suggests that if the uninsured were to become insured that their inpatient hospital utilization would increase.

If the uninsured were to obtain insurance, the magnitude of utilization increase would depend on the type of insurance. If the insurance were the traditional freedom of choice plan without utilization controls, then we would expect utilization for the uninsured to increase from 60% to 70% of the rate for

the insured to 100% of the rate for the insured. This would represent a 43% to 67% increase in utilization. (That is, an increase from 70% to 100% is an increase of 30/70 = 43%. Similarly, an increase from 60% to 100% is an increase of 40/60 = 67%). However, if the insurance was provided by an HMO or other form of managed care which reduced hospitalization rates from traditional freedom of choice levels by 20%, then we would expect an increase in utilization from 60% to 70% of utilization rates for the insured to 80% of utilization rates for the insured, and this translates into a much smaller 14% to 33% increase in utilization. Utilization may be greater during the initial period of insurance coverage due to high levels of unmet need among the uninsured. However, this should be a short term effect.

These estimates of utilization increases can be readily translated into dollars: if all of the uninsured were to become insured in a managed care plan which effectively controlled utilization, then inpatient hospital costs for this population would increase from their 1984 estimated level of $115 million to somewhere between $130 million and $153 million -- an increase of $16 to $38 million.

4.4 INSURANCE STATUS AND OUTPATIENT HOSPITAL UTILIZATION RATES

It is well known that the poor make greater use of hospital outpatient services than the non-poor. This section reviews some of the evidence on the magnitude of the differences in utilization, briefly considers some of the reasons why this difference exists, and provides a rough estimate of the size of the impact of providing insurance coverage for the uninsured on outpatient utilization and costs.

Survey Data on Outpatient Utilization Rates

Swartz (1983) presents an analysis of the 1978 Health Interview Survey data which suggests that the uninsured near-poor in New England were twice as likely as the insured near-poor to use hospital outpatient departments and emergency rooms. This analysis found that among the insured near-poor, 10% had last seen a doctor in a hospital outpatient department or emergency room, compared to 21.5% among the uninsured near-poor. These data were collected in 1978; one suspects that the exodus of physicians from inner cities means that reliance on hospital outpatient departments and emergency rooms among both the insured and uninsured has increased since that time, and that the differential in utilization, if it has changed, has widened.

Aggregate Data on Outpatient Utilization Rates

Outpatient costs for the privately insured population are approximately 23% of total hospital costs for the privately insured (see Table 4-11); in contrast, Medicaid outpatient costs for the AFDC population are approximately 38% of total hospital costs for this population, and outpatient BDFC costs are

TABLE 4-11

Outpatient Costs as a Percentage of Total Hospital Costs
By Insurance Status

	Insurance Status		
	Blue Cross/ Commercial	Medicaid (AFDC only)	Uninsured (BD/FC)
Inpatient Costs	77%	62%	55%
Oupatient Costs	23%	38%	45%
Total	100%	100%	100%

Sources: Blue Cross/Commercial estimates from the 1984 404 reports for payor mix and inpatient/oupatient mix; 1984 MAC reports for cost (maximum allowable cost) data.

Medicaid estimates from Department of Public Welfare MARS expenditure reports by category of assistance, state fiscal year 1985.

BD/FC estimates from information by eight hospitals on inpatient and outpatient BD/FC, various years, although mostly 1984-85.

approximately 45% of total BDFC costs. This data supports the proposition that outpatient utilization for the poor is significantly higher than for the rest of the population, and that outpatient utilization for the uninsured poor is even higher than for the insured poor. Further, these data can be used to derive an estimate of the magnitude of the outpatient utilization differences.

In what follows an estimate is developed of the volume of outpatient services provided to the uninsured, and this estimate is compared with an estimate of the volume of outpatient services provided to the privately insured.

In fiscal year 1984, there was approximately $100 million in outpatient BDFC. The study by Blue Cross cited earlier shows that approximately 90% of outpatient BDFC is accounted for by people with no insurance payment. If all those with no insurance payment were uninsured, then it would be safe to conclude that $90 million in outpatient BDFC was provided to the uninsured.

However, there are substantial numbers of people who are insured for inpatient care but not for outpatient services. National data suggests that approximately 5% of those with inpatient coverage are uncovered for outpatient services. While this is not a large percentage, if it holds in Massachusetts, then approximately 220,000 people are uninsured for outpatient services but insured for inpatient services. In addition, there will be people who are insured for outpatient services but who have not satisfied their deductible and potentially might be generating bad debt in the outpatient department.

It seems likely that those who are partially insured, but uncovered for outpatient services, would generate a relatively small amount of outpatient BDFC. If there are approximately 220,000 such people, they represent one-quarter to one-third of all those who are uninsured for outpatient services. It is reasonable to expect, however, that they account for a substantially smaller proportion of outpatient BDFC. Assuming, somewhat arbitrarily, that those who are partially insured account for 15% of outpatient BDFC, then those who are completely uninsured would account for 85%, or $77 million of the outpatient BDFC which is attributable to those with no insurance payment.

If none of the uninsured paid for their outpatient care then this $77 million would be our best estimate of the volume of outpatient services delivered to the uninsured. However, hospitals do collect significant amounts of money from the uninsured for outpatient care, which makes sense when we remember both that some of the uninsured are not poor and that many outpatient bills are relatively small and can be paid in part by even those of modest means.

If we assume that 20% to 30% of the charges incurred by the uninsured are paid for out-of-pocket, with the other 70% to 80% resulting in bad debt or free care, then the estimate of $77 million in BDFC delivered to the uninsured corresponds to an estimate of $96 million to $110 million worth of outpatient services delivered to the uninsured. Combined with the estimates of 520,000 to 660,000 people uninsured, this estimate

suggests a range from $145 to $211 per uninsured person per year in outpatient costs.

The privately insured average approximately $100 per person per year in outpatient costs. Thus, it appears from this aggregate analysis that the uninsured utilize between 45% and 111% more outpatient services than the privately insured. This is a broad range, and uncertainties concerning a variety of assumptions makes it possible that the truth actually falls outside of this range.* Nevertheless, this aggregate analysis confirms the conclusions from the survey data that the uninsured are much more likely than the insured to utilize hospital outpatient departments. Further, it suggests some parameters for the magnitude of the difference.

If the uninsured were to become insured, and if outpatient department costs were to decline to the level in the insured population, we would expect a decline in outpatient costs of between $45 to $111 per uninsured person per year. This

---

*In particular, the estimate that 20-30% of the outpatient changes incurred by the uninsured are paid for out-of-pocket does not have a strong empirical base. If this estimate is too high, then the $145-$211 range for outpatient costs per uninsured person may be too high. However, as noted above, the estimate of 520,000 - 665,000 uninsured people is an estimate of their number at a point in time. Significantly fewer will be uninsured for the entire year, and this will cause the $145-$211 range to be too low as an estimate of the annual per person outpatient costs for the uninsured.

translates into an aggregate savings of approximately $30 million to $77 million per year, and should more than counter-balance the expected increase in inpatient costs that would result if the uninsured were to obtain insurance.

However, the assumption that OPD costs for the presently uninsured would decline to $100 per person per year if they were to obtain insurance is somewhat questionable. As was noted earlier, Medicaid recipients also utilize large amounts of outpatient services, and this results in large part from the lack of availability of non-hospital based primary care physicians in the inner cities where many Medicaid recipients and many of the uninsured poor live. In order to experience potential costs savings from the provision of insurance to the presently uninsured, not only insurance mechanisms but also the capabilities of primary care delivery systems must be enhanced.

Finally, it should be noted that the uninsured poor incur substantial amounts out-of-pocket expenditures on health care in addition to the bad debt/free care monies that are paid for on their behalf in the hospital system. Recent estimates suggest that out-of-pocket health care expenditures for the uninsured may be as high as $200 to $300 per person. It is clear that if health insurance for the presently uninsured is to be possible without a substantial increase in the current subsidy that is paid through the bad debt/free care pool, it will be important to maintain, on average, something close to the current level of out-of-pocket expenditures.

4.5 CONCLUSION

This chapter has provided a synopsis of what is known about the uninsured in Massachusetts and the hospital-based health care that is delivered to them. The main findings are:

- Between 520,000 and 665,000 Massachusetts residents under 65 years of age are uninsured at any point in time. This represents 10% to 13% of the under-65 population.
- Among the uninsured, one-third are under 19 years of age; among uninsured adults, almost 60% are employed, 27% are outside of the labor force (students, housewives, or disabled), and only 13% are unemployed.
- Lack of insurance is strongly related to site of hospitalization. Controlling for age, location of residence, and hospital service utilized, the uninsured are much more likely than the insured to use those hospitals that serve the poor.
- Lack of insurance is also strongly related to the amount of inpatient hospitalization: the uninsured are hospitalized between 60% and 70% as often as the insured. Both this fact and the relationship between insurance and site of hospitalization indicate that access to inpatient care for the uninsured is significantly worse than access for the insured.

- The uninsured use substantially more hospital outpatient services than the insured--between 40% and 100% more. This is primarily a reflection of inadequate access to non-hospital based primary care providers.
- The combination of relatively high outpatient department use with relatively low inpatient use results in hospital costs for the uninsured that are as high or higher than the hospital costs for the insured.

The implications of these findings are critical to the development of policies and programs for the uninsured. If we can use the dollars currently spent on services for uninsured persons in more cost-effective ways, it should be possible to provide a greater volume of inpatient services and a more appropriate mix of primary care services without significant new expenditures. In order to achieve such a change in patterns of utilization and expenditures, we need both an insurance mechanism and an enhanced delivery system. These issues are discussed further in Chapter 5.

Chapter 5

Options in Financing Health Care for the Uninsured

Chapter 372 has protected, and can be expected to improve, access of the uninsured poor to the hospital system in Massachusetts. The bad debt/free care pool established in recently enacted legislation creates the only hospital reimbursement system in the country in which a hospital is guaranteed that any free care provided will be fully reimbursed and that the hospital will not need to raise its prices to private payors in order to receive this payment. This system will, at a minimum, maintain the willingness of hospitals to serve the poor in the face of competitive pressures, and combined with a declining patient census and low occupancy rates, may somewhat increase this willingness.

The legislative success of this proposal in Massachusetts results largely from the support provided by a variety of disparate groups in the Health Care Coalition--the Massachusetts Business Roundtable, the Massachusetts Hospital Association, the Massachusetts Medical Society, the Massachusetts Association of HMOs, major insuror groups, organized labor and the State.

However, dissatisfaction with this financing arrangement from a variety of sources makes it unlikely that this will be a viable long-term solution to the problem of how to finance and deliver care to the uninsured poor. The recognition that this bad debt/free care pool is not the 'final solution' is evidenced by the sunset in the recently enacted bill, which provides that

the current system will end in October of 1987, and that new legislation will be required to replace it. The current legislation establishes a study commission to investigate the issues raised by all sectors of the health industry and recommend solutions.

Hospitals argue that the bad debt/free care pool puts them at a competitive disadvantage with other ambulatory care providers--particularly HMOs and ambulatory surgery centers--and are seeking to have the financing of uncompensated care taken out of the hospital charge structure entirely. Thus, while the bad debt/free care pool makes competition fair within the industry, it does nothing to address what hospitals perceive as an "uneven playing field" between the hospital industry and other providers of care.

The current system is unsatisfactory to the business community for a variety of reasons. Most importantly, it establishes a system in which those employees who provide health insurance to their employees are subsidizing those employers who do not provide health insurance. Second, to the extent that the bad debt/free care pool actually increases access for the poor, the amount of the subsidy will increase, which is likely to provoke increased resistance from those employers who provide it. Finally, a paradox: although access to inpatient services for the uninsured poor is certainly inferior to access for the insured, the uninsured will soon be the only large group of hospital patients for whom there is no utilization review, no pre-admission screening, and no scrutiny of the accuracy of the

bill. This creates a situation in which there is the potential for over-utilization of inpatient services. Further, the business community and the State will be faced with the politically difficult situation in which large numbers of the privately insured choose HMOs, at least initially because they offer lower premiums than freedom of choice insurance plans, but in which the uninsured remain with 'freedom of choice' health care non-coverage.

Finally, the current system is unsatisfactory to the uninsured poor and their advocates both inside and outside the government. To the extent that the uninsured are served in private hospitals, it is a result of 'charity' provided by the hospital. Uncertainty concerning the hospital's reaction (Will I be served? Will I be treated courteously? Will I be billed?) no doubt serves as a barrier to some among the uninsured in deciding whether or not to seek treatment. This results in less care being delivered to the uninsured than would be desirable at early stages of illness, and probably results in greater health care need at the time that care is eventually sought. More importantly, the current system provides no systematic access to non-hospital based ambulatory care, and no coverage at all of prescription medication. This creates an overreliance on hospital outpatient departments, underutilization of preventive services, lack of continuity of care, and no access at all to HMOs, where increasingly large proportions of the privately insured are receiving their care.

This concluding chapter presents the major policy choices

available to Massachusetts for financing health care services for the poor. These choices will have different impacts on patterns of care and utilization of health services by the poor.

Before addressing the options for the future, it is important to recognize that the progressive features of the hospital reimbursement system create only one of a number of policies demonstrating the commitment of the Commonwealth to improving the health status of the uninsured and the poor. Most of the efforts have focused on improving care for pregnant women and their children, since the connection between health care and improved health status has been demonstrated most convincingly for these groups.

The state has expanded the Medicaid program in several very significant areas since 1984. General Relief recipients now receive full medical average; Medicaid pays for ambulatory care and hospitals provide inpatient services as uncompensated care. Medicaid eligibility has been expanded through a 10% increase in th income limit, and unemancipated pregnant teenagers are now eligible for Medicaid benefits. Pregnant women that have been eligible to receive AFDC cash assistance during their third trimester, may now receive cash assistance during their first two trimesters in Massachusetts. It is important to reiterate that the state has expanded the Medicaid program during an era of massive federal cutbacks.

The state also supports several programs that provide essential services for women and children. The Healthy Start

Program provides prenatal care, delivery and one post-partum visit for uninsured women whose incomes are less than 185% of the poverty level. Massachusetts was the first state to supplement federal WIC (Women, Infants and Children) funds. As a result of the eight new sites opened with this funding, we more than doubled the number of women, infants and children receiving nutrition services. Similarly, an increase in state dollars for the MIC (Maternal and Infant Care) program has allowed us to provide more comprehensive services to high-risk, low-income women and their infants.

Massachusetts also supports the poor's primary providers of care--neighborhood health centers. Health centers receive over $1 million in direct grants from the state and generous Medicaid rates. As of this year, they will also receive an appropriation from the state to cover their bad debt and free care.

5.1 Framing the Issues

As we think about financing health care to the poor, we face two primary questions: how will money be raised and how will it be spent? Currently, we pay for BD/FC through the hospital charge structure (an indirect tax on insurance policies), through general revenues when direct grants are made to providers, donations of free care by private practitioners, and out-of-pocket payments by patients. These methods rely on providers' discretion and do not address any issues of equity or efficiency. Since we are entitling institutional providers to reimbursement rather than entitling or insuring consumers, we buy hospital services and relatively little community-based service with our uncompensated care monies. This current system has developed more by default than by pro-active strategies and decision-making. Massachusetts has an opportunity in the Chapter 372 Special Commission to develop a more thoughtful, equitable, and efficient approach to uncompensated care.

Generating Revenues

While there are many creative ways to raise revenues, there is a fairly limited number of options that are politically feasible and raise the amount of money required. The most frequent and serious suggestions have been: 1) general revenue tax, 2) surtax on hospital charge or insurance premiums, and 3) "sin taxes" such as cigarette or alcohol taxes. Another option raised in Massachusetts has been an employer's version of the "Care or Share" concept - any business that does not provide health insurance for its employees must pay a tax earmarked for

health services or health insurance options.

A variety of regulatory approaches to financing care are in place all across the country. Some states have used their regulatory authority over providers to guarantee financing, and three states make assessments on hospital revenues for indigent care. States with all-payor or multiple-payor systems are able to make provisions within their rate setting structure for uncompensated care. However, the use of regulatory authority has not guaranteed the full-reimbursment for uncompensated care that Massachusetts provides for its hospitals.

Many states still operate state or county indigent care programs that are funded through general revenues or local sales and property taxes. The programs vary considerably in covered benefits, level of benefits, persons covered, and providers eligible for reimbursement. As the demand for service has grown, many of these programs have become strained well beyond their financial and service capacity. This problem is particularly severe in states with strong county systems, where there is little uniformity or equity across counties.

Each of these options raise questions that must be answered such as "Is this mechanism broad-based enough? Will federal participation be maximized? What groups will bear a disproportionate share of this financing? What is the financial impact on small business? What kind of shifts will be encouraged in the private insurance market? Will this raise enough money? If not, how will the shortfall impact consumers and providers?

The source of revenue for uncompensated care or indigent care will impact the mechanism for disbursing these monies and the choice of an administrator for the mechanism. Currently, bad debt and free care is explicitly a private sector resonsibility with some direct Medicaid payments to Boston City Hospital and a limited number of other institutions, that the Rate Setting Commission administers by using Blue Cross as an agent. Thus, it is not unthinkable that uncompensated care would be a shared public-private responsibility. The profile of the uninsured presented in the previous chapter should be helpful in determing what share of the liability belongs to the private sector, and which elements should be public sector responsiblity. How much this profile will help is unclear--private and public payors are looking for ways to reduce their health care costs and will not be eager to accept additional liability.

Spending Options

The options for spending money on health care for the poor fall into three major categories: targeting local governments, targeting providers, targeting individual consumers. The first choice is considered most seriously in states with strong county governments and/or extensive county or municipal health systems. Although the recent amendments to Chapter 372 provide reimbursement for bad debt and free care in health centers in Massachusetts, guarantees of payment are usually limited to hospitals and hospital licensed facilities through hospital payment system as an alternative to paying hospitals through the

charge structure, some states have made specific, lump-sum payments to hospitals. There have been very few attempts anywhere in the country to target individuals rather than providers and most programs have been limited to high risk individuals.

The major conceptual and philosophical differences between approaches that entitle individuals and those that entitle providers deserve some discussion here. Payment to providers for bad debt and free care protects providers from the potentially harmful cost shifting they would have to implements to recover the costs of these services. However, cost shifting may still occur to a lesser degree if the payment for services to uninsured people is less than comprehensive or "poor" relative to payment for insured people. Moreover, it would not be surprising if the payors for bad debt/free care choose to limit their enormous liability through a cap or some equally blunt mechanism, regardless of the impact on providers' financial incentives.

Another choice implicit in entitling providers rather than individuals is the purchase of expensive institutional services rather than primary care. Entitling institutional providers, which historically has been the only provider group guaranteed payment, makes it more difficult to efficiently purchase a mix of services that includes primary and preventive services. For example, there is virtually no disagreement with the fact that hospital emergency rooms and outpatient departments are not appropriate for primary care, and that non-hospital providers

are preferred for this level of care. However, these locations are the primary source of care for many poor people, as Chapter 4 illustrated. The other major source of care for poor people is likely to be a neighborhood health center. These providers rely on grants or other "soft" money to cover the cost of services provided to poor people. Health centers frequently provide high levels of free care as part of their mission. However, this "mission" is creating increased financial pressure for many health centers as their ability to bring in grants diminishes. Another example of a cost-effective benefit may be prescription drugs, which are beyond the resources of many poor people, but certainly key to many treatment plans. Once again, there is no mechanism for pharmacists to recoup payment for prescriptions given to people who cannot pay.

Targeting financial support to individuals for health care and allowing them to choose providers appropriate for their health needs addresses concerns of underutilization and some of the quality and freedom of choice concerns. Entitlement of individuals is also more consistent with the position that we should have one system of care for all people, and not isolate poor people into a system that could be considered second-class care. The major concern with such a solution is the potential financial liability, which is a realistic concern given the historical growth of the Medicaid budget and bad debt and free care expenditures over time. (See Chapter 3 for details.)

5.2 FINANCING OPTIONS

During the past two years, several ideas for providing and financing care for the uninsured have surfaced in Massachusetts. These ideas will be discussed in the deliberations of the Chapter 372 Special Study Commission as the state moves to implement one or more of these approaches. The financing approach ultimately taken will reflect the strength of the Commission's commitment to a single class of care for all people, and adequate access to health insurance and the health system. We have made two assumptions in listing these options: 1.) there will be adequate financing for indigent care; 2.) the financial burden should be carried by a broad base of support. Therefore, options such as returning to a system in which each hospital adjusts its own charges to cover the uncompensated care it provides or reliance on local government to fund indigent care at select hospitals are not included.

Uncompensated Care Pool

The recently enacted amendments to Chapter 372 establish a pool for bad debt and free care, which will be in effect until the legislation sunsets. There is considerable interest and concern over the use of a pool in any long-term solution to uncompensated care. In addition to the most basic issue of choosing a method of generating revenues for the pool, there are

major operational issues related to using these funds to care for poor people. Some of these questions are: Who is eligibile for free care? What is the best mechanism for fairly limiting the number of people getting their health care paid for this way? What agent should administer the pool? What providers should be eligible for reimbursement from the pool? What will the rate of payment be from the pool relative to other payors? What services will be paid for?

Cost-effectiveness and appropriate use of services is critical to the success of any pool of funds for uncompensated care. Despite the shared liability and broad base of support likely in a pool, the amount of bad debt and free care is so great that all contributors must monitor their funds and limit the growth in their liability. Neither business nor state government will be able to pass this liability to consumers and taxpayers in an unlimited fashion. This strategy requires recognition that monies paid for bad debt and free care are not simply hospital revenues and protection against financial loss; bad debt and free care monies buy health care for uninsured people.

Although the concept that bad debt and free care monies buy health care seems obvious, it has several corrolaries that change the status quo. First, money spent on care for the uninsured would probably be targeted to low-income persons without resources to purchase insurance; concerns about which populations receive subsidy are legitimate and should be addressed. Second, the magnitude and rate of growth in

uncompensated care provide the same imperative to contain costs and provide cost-effective care that we have already responded to through Chapter 372. Services provided as uncompensated care are the least scrutinized category of expenses in the reimbursement system. Third, to the extent that hospitals are not the most cost-effective sites for primary care, we must find ways to purchase non-hospital services for the uninsured poor and provide coverage for items such as prescription drugs and diagnostic services that may be most cost-effective in the long run.

High Risk Insurance Pools

This has been tried in other states with mixed results; these pools have some appeal in terms of identifying high cost persons that are uninsured or contributing disproportionately to the losses and subsequent high costs of direct-pay insurance products. Although we do not know what proportion of the uninsured population is high risk, we do know that significant numbers of the uninsured are among the working poor. Since ability to work is one indicator of relatively good health, we can assume that a significant portion of the uninsured would not be eligible for a high risk pool.

Nine states have implemented high risk pools as one of their initiatives to provide care to the medically indigent. Each plan has unique features, but they share certain elements according to a recent report of the Intergovernmental Health Policy Project:

- this insurance is available only to residents who have been denied coverage or shall only be offered limited coverage
- all major insurors and prepaid health plan are required to participate in the association offering coverage and/or to share in any losses associated with the program
- rates are usually set at 125% to 200% of the average premium charged by major insurors
- no state has been willing to subsidize the cost of premiums for low income people

If Massachusetts were to move toward this approach for high risk individuals, changes in the "unique role" of Blue Cross and Blue Shield would have to be part of the proposal. As part of their "unique role", the non-profit hospital service and physician service corporations are required to offer non-group insurance to all who apply. The offering may require a health statement from all applicants who are not converting from a group policy and can impose waiting periods for pre-existing conditions. The premium rates are not indexed to group premiums as other states require in their high risk pools, but non-group premiums are regulated by the Division of Insurance. The non-group line-of-business has resulted in substantial losses for the corporations and has served as partial justification for the differential allowed to Blue Cross in the hospital payment system. Therefore, through the hospital payment system, charge payors are subsidizing the premium for a segment of the state's

high risk population. It is not clear who else benefits from this system, since the non-group offering is not structured as a high risk pool.

High risk pools enable states to target people with large medical needs for subsidized coverage, but does not further the goal of insuring as large a proportion of the state's residents as possible. Uninsured people who do not qualify for high-risk pools may still have significant health care needs and inadequate resources to purchase services. Uninsured people who have had health coverage recently may be in this category--i.e. former AFDC recipients, people laid off in plant closings and the working poor.

Other Insurance Options

High risk pools are the most popular option in states seeking to expand insurance coverage, but a few other types of plans have been tried. Rhode Island and Alaska provide catastrophic coverage that discourages participation by low income people by imposing a very high deductible, and appeals to people who have exhausted their insurance benefits. Maine recently reduced its catastropic coverage plan to include ambulatory care only and also requires high contributions by members. Massachusetts currently provides greater Medicaid coverage to medically needy persons than Rhode Island or Alaska, and through the Medicaid program assists individuals who would qualify for a program structured like Rhode Island's or Alaska's.

Another avenue pursued by many states is the expansion of

continuation and conversion requirements associated with group coverage. States require continuation or conversion privileges for persons losing insurance as a result of termination, lay-off or death of a spouse from periods ranging from one month to eighteen months. In Massachusetts, these privileges vary by insurance carrier and by employer. These privileges are least helpful to low-income persons, since the full premium cost at group rates is paid by the subscriber. Obviously, the chronically uninsured do not benefit from these policies.

A third type of assistance provided by some states is insurance or direct assistance for persons with specific diseases or disability. Here again, Massachusetts differs from other states. Massachusetts law forbids "dread disease" policies that cover people for specific diseases such as cancer. The accident and sickness regulations here require insurors that wish to offer "Specified Disease Coverage" to cover a wide range of conditions and meet minimum standards and benefit levels. Among the states that do target people with specific conditions or illnesses, most provide direct support rather than insurance.

Benefits of Insurance Mechanisms

Insurance mechanisms offer several advantages over a simple payment mechanism for providers:

- It is possible to choose a more appropriate mix of services than the uninsured currently receive in the design of the benefit package;

- Once the uninsured are enrolled in an insurance plan, it is possible to include them in utilization review and quality assurance programs that benefit other insured groups;
- It is possible to share risk with providers of care as a means of controlling overall costs, which is a mechanism that is fairly sensitive to consumer issues. Shared risk through insurance is much less blunt than a cap on total uncompensated care within the state, which would effect the uninsured in unpredictable and often inappropriate ways.
- Patients that are insured rather than "charity" cases benefit from improved status in the hospital and hospitals could compete for this population as they compete for other insured patients.

Since an insurance program is most likely to address both the equity and efficiency problems that exist in our current method of providing indigent care, it is worth noting some of the political and operational issues that must be dealt within the development of such a program.

- Financing premium subsidies An affordable insurance plan for low income people will require substantial premium subsidy. Since the original Chapter 372 negotiations, a shared public-private responsibility has been the financing solution. It should be assumed that the payments to providers will support the costs

to providers, and therefore, premiums for the uninsured should not be significantly lower than premiums for comparable plans covering insured people.

- o Relationship to the Medicaid Program In addition to establishing a level of state financial support that is appropriate and affordable, an insurance program for the low-income uninsured will be examined for its impact on Medicaid eligibility, benefit levels and cost-sharing. The benefit package for the uninsured will be compared to both Medicaid and private insurance plans for equity.
- o Shifts in the Private Insurance Market To the extent that low-income people are already covered through group insurance plans, a subsidized plan should not encouraging employers to drop coverage for their low income employees. Also, any financing scheme that requires employers to contribute to health insurance benefits must be evaluated for its impact on small business, self-employment, and part-time employment.
- o Enhancing Capacity of the Service Delivery System The impact of extending the insurance system to cover an additional 500,000 to 665,000 people should not be underestimated. If we assume that the uninsured will be choosing among a range of health plans, the existing provider networks and any new provider arrangements will need to prepare for an influx of new members.

Administrative mechanisms for cash management and accounting, referral systems, member education, medical recordkeeping and all of the "business" aspects of insurance must be available. The clinical ramifications of insuring the uninsured will be felt in hospitals and non-hospital settings. Demand for primary care in non-hospital settings should increase significantly as people receive less routine care in hospitals and eventually, less emergency care. Admitting patterns for inpatient care should shift away from the preponderance of emergency admissions. In general, the physicians and non-physician providers will have to adjust to treating more people that are subject to managed care or benefit management requirements.

Some areas of the state may have community-specific problems to address if the majority of the uninsured gained insurance. For example, many inner-city communities do not have non-hospital based physicians to provide primary care. Many inner-city communities rely heavily on their neighborhood health centers, which may not be able to handle the increased patient load that the uninsured represent.

While these are major issues, they are not insurmountable or more difficult politically than issues raised by other

approaches. Moreover, the existence of the Special Study Commission with its charge to recommend solutions for restructuring the health care financing and delivery systems, provides a unique opportunity to implement dramatic changes in indigent care. It seems increasingly clear that it is time to test new approaches to indigent care. Clearly, there are risks involved, but the potential for achieving more equitable and efficient care for the uninsured is great, given what we know about the uninsured and their current use of the health system.

Conclusion

In summary, two basic questions are key to setting a new policy course on access to health care for the poor and the uninsured: How will we generate revenues? How will we spend these revenues? As we evaluate our options for each question, it is critical to recognize that these are distinct issues which are closely related.

There are two basic approaches to the second question, how we provide indigent care: reimbursing providers or expanding insurance coverage. Most states address only the reimbursment issue, although a small but increasing number are beginning to look at insurance options. Massachusetts' efforts to care for the uninsured and the poor through our hospital reimbursement system and Medicaid program are quite impressive relative to other states, but we have not gone as far as some states in expanding insurance options. Expanding insurance options will have ramifications for the insurance industry and providers as well as the uninsured, and therefore, must be part of a larger set of policy considerations.

Despite the magnitude and complexity of the problems associated with indigant care, we have several indicators that we can really make a positive difference for the uninsured.

- first, there is a very positive political climate in Massachusetts, as evidenced by the involvement of business, labor, payers, providers, consumers and state government in negotiating the hospital payment system and its successor.

- the private and public sector have made substantial financial commitments already to the care of the uninsured.
- the information available on the uninsured, their current use of the health care system, and the costs associated with indigent care suggest that we may be able to provide care for the uninsured that is high quality and comprehensive without significantly increasing the current financial liablity.

These factors should not be underestimated as policy makers face a major decision point on changing the health care system in Massachusetts.

BIBLIOGRAPHY

Aday, Lu Ann, Gretchen V. Fleming, Ronald Andersen. Chicago: Pluribus Press and the University of Chicago Center for Health Administration Studies, 1984.
Access to Medical Care in the U.S.: Who Has It, Who Doesn't

"Analysis of the Health Care Options in Tennessee: Uncompensated Care". Contract FA0649 with Tennessee Department of Health and Environment, January 1, 1985.

Berk, Marc L. and Wilensky, Gail R. "Health Care of the Working Poor". Presented at the annual meeting of the American Public Health Association, November 13, 1984.

Blue Cross/Blue Shield of Massachusetts, 1983.
Draft Summary of Finding on the Uninsured.

Report from the Boston Foundation. "Boston At Risk". Boston, 1985.

Boston City Hospital Economic Transfer Task Force. Boston: members of the House Officers' Association, SEIU Local #285, and CommonHealth, February, 1984, 16 pp.
"Who Cares for Those Who Cannot Pay? Greater Boston Hospitals and the Issue of Economic Transfers".

Davis, Karen, Diane Rowland. Health and Society 61:7 (1983) "Uninsured and Underserved: Inequities in Health Care in the United States"

Farley, Pamela J. Washington, D.C.: National Center for Health Services Research, U.S. Department of Health and Human Services, 1984.
National Health Care Expenditures Study: Who are the Uninsured?

Feder, Judith, Jack Hadley, Ross Mullner. Working Paper: 3179-08, June, 1984. "Falling Through the Cracks: Poverty, Insurance Coverage and Hospitals' Care to the Poor, 1980 and 1982.

General Accounting Office. "An Evaluation of the 1981 AFDC Changes: Final Report". July 2, 1985.

Himmelstein, David V. and Steffie Woolhandler. The Lancet (August 18. 1985) 391.

Iglehart, John K. New England Journal of Medicine 313:1 (July 4, 1985):59-63.
"Health Policy Report: Medical Care of the Poor - A Growing Problem."

Intergovernmental Health Policy Report. Washington: The George Washington University, November, 1985. "State Programs of Assistance for the Medically Indigent".

Kinzer, David M. Inquiry 21:5-16 (Spring 1984) "Care of the Poor Revisited"

Lewin and Associates, Inc. (draft) "The Role of Teaching Hospitals in the Care of the Poor."Commonwealth Fund Task Force on Academic Health Centers. Boston

Massachusetts Health Data Consortium, Methodology for 1982 Reports. Waltham, MA: 1983.

Monheit, Alan C.. Michael M. Hagan, Marc L. Berk, Pamela J. Farley. National Center for Health Services Research. Paper presented to the American Public Health Association, November 13, 1984. "The Employed Uninsured and the Role of Public Policy"

National Health Care Expenditure Study (Data Preiew 7) Employer and Employee Expenditures for Private Health Insurance.

Sager, Ann. "The Public General Hospital Crisis: Recent Trends and Evolving Pressures" Paper presented at the American Public Health Association, November 1, 1981.

Staying Alive, CommonHealth (February 1983):1-11.

Staying Alive, CommonHealth (May 1984):1-11.

Staying Alive, CommonHealth (Spring 1985):1-11.

Swartz, Katherine. Washington, D.C.: The Urban Institute, September 1983.

Swartz, Katherine. Washington, D.C.: The Urban Institute, April 1985. "Interpreting the Estimates from Four National Surveys of the Number of People Without Health Insurance: A Project Summary Report."

Wilensky, Gail R., Marc L. Berk. Health Affairs (Fall 1982) "Health Care, The Poor and The Role of Medicaid."

Wilensky, Gail R. Health Affairs (Winter 1984):50-116. "Solving Uncompensated Hospital Care: Targeting the Indigent and Uninsured."

Woodhandler, Steffie, David U. Himmelstein. Health/PAC Bulletin 15:2 (March-April 1984):13-16. "Terms of Endowment: Prospective Hospital Reimbursement in Massachusetts."

Appendix A

REVIEW OF CREDIT AND COLLECTION POLICIES

Because there was more publicity around, and more interest in the potential effects of Chapter 372 on access to hospital care in the Boston area than in other areas of the state, credit and collection policies on file with the Rate Setting Commission were reviewed for all of the hospitals in Boston (HSA IV, subarea I), a 50% sample of other hospitals in HSA IV, and 25% sample of the hospitals in the rest of the state. Within each strata (HSA IV, subarea 2-5; all other hospitals not in HSA IV) hospitals were assigned a weight equal to their proportion of the state's total costs in the strata, and then a random sample was drawn. Within each strata, a hospital's probability of being chosen is proportional to that hospital's weight. Thus, larger hospitals are more likely to be sampled than smaller hospitals.

For each hospital sampled, a review was done of the RSC 'audit' file for that hospital. This file contains a variety of pertinent material for the hospital, such as Determination of Need letters, correspondence between the hospital and the RSC regarding allowable operating expenses, and credit and collection policies filed by the hospital with the RSC. While we cannot guarantee that every such policy filed by the hospital with the RSC was included in the 'audit' file, commission staff have assured us that most policies filed with the RSC will be included in this file.

Table A-1 lists the hospitals sampled for review and the results of the review.

TABLE A-1

Hospitals Included in Credit and Collection Policy Review

Suffolk County	Hospitals
No Policy on File	2
No Policy on File Prior to FY '82	1
No Policy filed during FY '83	3
No Change from previous policy	5
Change but not significant	2
Increased Stringency	4
Decreased Stringency	1

No Policy:	HCHP, Children's
No Policy prior to fall of '82	Mass. General
No Policy filed in '82, '83:	University, N.E. Deaconess, Hahnemann of Boston
No Change (9/82 thru 1983)	Beth Israel, St. Elizabeth's, N.E. Medical Center, Boston City, Mass. Eye and Ear
Change but not significant	Winthrop, St. Margaret's
Increased Stringency	N. E. Baptist, Carney, Huntington, Faulkner
Decreased Stringency	Brigham and Women's

(TABLE A-1 cont'd)

Other Hospitals

No Policy on File	0
No Policy on File prior to FY '83	3
No Policy filed during '83	6
No Change from previous policy	12
Change but not significant	2
Increased Stringency	6
Decreased Stringency	0

Other Hospitals

No Policy	None
No Policy prior to fall of '82	Sancta Maria, Charlton, Baystate
No Policy filed in '82, '83	Hubbard, Framingham, Somerville, Newton-Wellesley, South Shore,Worcester-Hahnemann
No Change (9/82 thru 1983)	Bon Secours, St. Joseph's Amesbury, Haverhill, Brookline, Morton, Cambridge City, Emerson, N.E. Memorial, Hillcrest, Providence, Salem

Change but not significant	Harrington
Increased Stringency	Lowell General, Lawrence General, Beverly, Mt. Auburn Cardinal Cushing, Waltham
Decreased Stringency	None

APPENDIX B

BAD DEBT AND FREE CARE:

DATA AND METHODS

This appendix describes the data sources and methods of analysis used in constructing tables on bad debt and free care.

When hospitals decide to write off an account as bad debt, or to give free care to a patient, the charges are written off as, respectively, bad debt or free care. If there were relatively uniform application of rules, either across time or across hospitals regarding the distinction between BD and FC, then it would be useful to analyze separately the level of bad debt and the level of free care. However, distinctions between BD and FC do differ markedly across hospitals, and differ in the same hospital over time, and therefore, we use BD and FC combined as a proxy measure for the volume of hospital services utilized by the uninsured poor.

In theory, bad debt should reflect services delivered to persons who the hospital deems able to pay their bill but who choose not to do so, and free care should reflect services delivered to persons who the hospital does not consider to be able to pay their bills. However, in the past, hospitals were allowed to write off accounts as bad debt or free care in conformance in their credit and collection policy on file with the Rate Setting Commission. However, due to wide variations in

these policies, as well as large amount of ambiguity in these policies, it is impossible to meaningfully compare bad debt and free care separately across hospitals. This situation will change somewhat upon implementation of regulations on credit and collection policies which have been recently adopted by the Rate Setting Commission. These regulations will leave hospitals with substantial discretion concerning the designation of accounts as bad debt or free care, but will provide some systematization of the terms.

DATA SOURCES

Hospitals are reimbursed for bad debt and free care on the basis of their bad debt and free care write-offs. These data, which will be used in the analysis in this paper, are the charges for bad debts that are actually written off in a given fiscal year, of the charges for free care provided in a given year. Because bad debts are typically not written off until well after service is provided (hospitals must first determine through repeated bills that the account is uncollectable) the amount of bad debt writeoff in any given year may not necessarily reflect the volume of services provided to the uninsured during that year. Further, changes in policy concerning the length of time to hold accounts receivable on the books before writing them off may cause bad debt writeoffs to be uneven, even though the volume of services provided to the uninsured is not. These caveats notwithstanding, we use bad debt and free care writeoffs, understanding that year to year functuations may represent random fluctuations or measurement artifacts.

To compare BDFC charges across hospitals and time, charges need to be adjusted to cost. This is done by applying a cost to charge ratio as follows:

$$\text{BDFC costs} = \text{BDFC charges} \times \frac{\text{Total Costs}}{\text{Total Charges}}$$

Note that the delay between the time a service is rendered and the time than an account is written off, combined with generally increasing total charges from year to year, will result in a slight underestimation of the percentage of a hospital's services which are BD and FC. To take a simplified example, suppose that in a given fiscal year a hospital had total charges of $100 million, and 5% of the services it provided eventually resulted in bad debt. Suppose further that these $5 million of charges were not written off until the following fiscal year, and that this $5 million were the only charges written off in the following fiscal year (that is the hospital has exactly a one year delay between the time a service is rendered and the time an account receivable associated with that service is written off as bad debt). If total charges in the following fiscal year had increased to $110 million, then we would estimate that 4.5% of the hospital's services generated bad debt, while the truth would be 5%. However, given that most hospitals do not wait one year before writeoff, (the average time is probably between 120 and 180 days), and the amount of total charges do not tend to vary drastically, this slight bias towards underestimation of bad debt levels should not present serious problems.

For Boston City Hospital, however, the errors in estimation may be extremely large. Total charges have fluctuated widely from year to year. In addition, BCH switched from a 6/30 to a 9/30 fiscal year in 1982, and this complicates the reporting process. Further, cost report data submitted by BCH has historically been notoriously unreliable. In light of these difficulties, and because BCH provides over one-fifth of statewide BDFC and it is crucial to get accurate estimates of the amount of BDFC it provides, we have used information furnished by the BHC Finance Office rather than cost report information in this paper. This information reports on "provisions" for bad debt and free care--that is the amount of charges in any given fiscal year that is expected to result in bad debt or free care rather than BDFC writeoffs.

For all of the other hospitals, from 1976 to 1981, we use data abstracted by staff at Blue Cross from settlement forms. These data include a small number of hospitals in each fiscal year for which data was estimated (either by interpolation or by assuming a cost to charge ratio of .9 in order to reduce BDFC charges to cost). Summaries of these data have been previously reported by Blue Cross. The data for 1976 to 1981 reported in this paper are slightly different from the previous Blue Cross reports for two reasons: first, as noted above, we use different, and more accurate data, for BCH; second, the Blue Cross summary included a number of small arithmetical mistakes which have been corrected in the analysis in this paper.

For fiscal years from 1982 to 1984, we use data from the MAC

report (Maximum Allowable Cost) filed with Blue Cross. The BDFC charges and total charges data should be fully comparable with the data reported for the 1976-1981 time period. However, the total cost data element (used to constant the cost/charge ratio) abstracted from the MAC report is conceptually different from the total cost variable used in previous years. In the years before 1981, the total cost variable measured the hospital's acutal costs for patient services, including an allowance for depreciation. Starting in 1982, the total cost variable measures the hospital's maximum allowable cost, which is the hospital's 1981 actual costs, adjusted forward for inflation, changes in volume, changes in capital costs, and a variety of exceptions. Although this creates a slight discontinuity in the pre and post 1982 time series, it is a minor one. Further, since the MAC number is the number on which reimbursement is based in 1982 and beyond, it is more useful for our purposes.

For 1982 and 1983, the data were desk reviewed by Blue Cross for internal consistency (but not field audited). For 1984 the data for some hospitals was desk reviewed, while for others the data are as filed and not reviewed.

The percentage of a hospital's business that was bad debt and free care is displayed, by hospital, for fiscal years 1978-1984 in Table B-1. Note that the apparent increase in BDFC percentage at BCH in 1984 -- from 41% to 46% -- does not reflect an increase in the volume of services delivered to the uninsured poor, but primarily reflects a change in payment arrangements for the Boston Health Plan. The Boston Health Plan was a federally

TABLE B-1 % BAD DEBT/FREE CARE BY HOSPITAL, 1978-1984

SAS

OBS	HOSPNAME	PCT78	PCT79	PCT80	PCT81	PCT82	PCT83	PCT84
1	ADDISON GILBERT	0.045	0.059	0.043	0.026	0.043	0.045	0.053
2	AMESBURY	0.061	0.047	0.028	0.066	0.060	0.056	0.026
3	ANNA JAQUES	0.034	0.053	0.060	0.054	0.056	0.066	0.061
4	ATHOL	0.034	0.021	0.028	0.028	0.028	0.041	0.026
5	BAYSTATE	0.072	0.078	0.070	0.058	0.053	0.060	0.060
6	BERKSHIRE	0.034	0.025	0.029	0.033	0.029	0.037	0.040
7	BETH ISRAEL	0.055	0.054	0.045	0.038	0.035	0.034	0.031
8	BEVERLY	0.044	0.038	0.039	0.054	0.050	0.038	0.037
9	BON SECOURS	0.044	0.035	0.025	0.034	0.047	0.043	0.042
10	BOSTON CITY	0.321	0.360	0.353	0.347	0.397	0.413	0.462
11	BRIGHAM/WOMENS	0.045	0.063	0.061	0.052	0.061	0.085	0.065
12	BROCKTON	0.029	0.037	0.042	0.050	0.044	0.065	0.064
13	BROOKLINE	0.012	0.014	0.012	0.007	0.014	0.008	0.017
14	BURBANK	0.038	0.035	0.041	0.043	0.041	0.035	0.054
15	CAMBRIDGE CITY	0.166	0.159	0.117	0.110	0.174	0.161	0.135
16	CAPE COD	0.019	0.019	0.020	0.020	0.014	0.032	0.035
17	CARDINAL CUSHING	0.051	0.048	0.045	0.047	0.041	0.048	0.040
18	CARNEY	0.068	0.061	0.063	0.067	0.077	0.080	0.082
19	CENTRAL	0.038	0.030	0.025	0.032	0.019	0.020	0.025
20	CHARLTON	0.025	0.020	0.023	0.023	0.019	0.022	0.022
21	CHILDRENS	0.058	0.047	0.045	0.044	0.055	0.053	0.046
22	CHOATE/SYMMES	0.022	0.046	0.061	0.050	0.038	0.085	0.052
23	CLINTON	0.046	0.045	0.042	0.040	0.040	0.037	0.033
24	COOLEY/DICKENSON	0.026	0.028	0.022	0.028	0.022	0.023	0.036
25	EMERSON	0.018	0.025	0.027	0.029	0.036	0.040	0.036
26	FAIRLAWN	0.015	0.018	0.022	0.028	0.030	0.033	0.025
27	FAIRVIEW	0.009	0.046	0.029	0.032	0.032	0.032	0.034
28	FALMOUTH	0.036	0.034	0.029	0.032	0.037	0.035	0.031
29	FAPREN MEMORIAL	0.025	0.018	0.016	0.024	0.017	0.027	0.048
30	FAULKNER	0.039	0.053	0.031	0.034	0.043	0.037	0.029
31	FRAMINGHAM UNION	0.032	0.024	0.030	0.023	0.032	0.031	0.029
32	FRANKLIN COUNTY	0.042	0.040	0.035	0.038	0.040	0.038	0.046
33	GLOVER MEMORIAL	0.016	0.014	0.015	0.016	0.029	0.017	0.020
34	GODDARD MEMORIAL	0.026	0.029	0.034	0.029	0.027	0.036	0.031
35	HAHNEMANN OF BOSTON	0.003	0.005	0.003	0.009	0.032	0.021	0.016
36	HALE/HAVERHILL	0.023	0.020	0.029	0.036	0.026	0.021	0.022
37	HARRINGTON MEMORIAL	0.045	0.039	0.048	0.037	0.045	0.045	0.039
38	[illegible]/PARKER HILL	0.026	0.000	0.015	0.005	0.008	0.007	0.003
39	HENRY HEYWOOD	0.016	0.022	0.025	0.024	0.032	0.021	0.029
40	HILLCREST	0.030	0.056	0.047	0.023	0.034	0.039	0.040
41	HOLDEN DISTRICT	0.022	0.015	0.023	0.018	0.029	0.033	0.030
42	HOLYOKE	0.025	0.027	0.031	0.046	0.038	0.046	0.048
43	HUBBARD REGIONAL	0.027	0.024	0.024	0.035	0.038	0.046	0.044
44	HUNT MEMORIAL	0.023	0.023	0.025	0.017	0.035	0.023	0.028
45	HUNTINGTON GENERAL	0.025	0.013	0.014	0.003	0.007	0.019	0.038
46	JB THOMAS	0.039	0.033	0.033	0.040	0.032	0.031	0.031
47	JORDAN	0.028	0.016	0.050	0.065	0.035	0.037	0.049
48	LAWRENCE GENERAL	0.037	0.037	0.028	0.039	0.029	0.037	0.047
49	LAWRENCE MEMORIAL	0.011	0.016	0.009	0.007	0.011	0.014	0.012
50	LEOMINSTER	0.031	0.041	0.032	0.024	0.023	0.025	0.025
51	LEONARD MORSE	0.027	0.024	0.032	0.025	0.034	0.029	0.029
52	LOWELL	0.019	0.022	0.020	0.030	0.037	0.029	0.042
53	LYNN	0.043	0.059	0.040	0.060	0.058	0.069	0.061
54	MALDEN	0.023	0.026	0.041	0.031	0.028	0.031	0.036
55	MARLBOROUGH	0.050	0.048	0.052	0.045	0.055	0.047	0.043
56	MARY A ALLEY	0.007	0.002	0.000	0.071	0.002	0.003	0.004

SAS

OBS	HOSPNAME	PCT78	PCT79	PCT80	PCT81	PCT82	PCT83	PCT84
57	MARY LANE	0.045	0.062	0.052	0.076	0.028	0.074	0.035
58	MASS EYE AND EAR	0.039	0.045	0.042	0.052	0.043	0.042	0.056
59	MASS GENERAL	0.033	0.028	0.039	0.038	0.041	0.045	0.038
60	MELROSE/WAKEFIELD	0.013	0.016	0.038	0.076	0.057	0.050	0.042
61	MERCY	0.030	0.045	0.042	0.050	0.041	0.039	0.035
62	MILFORD/WHITINSVILLE	0.035	0.043	0.040	0.046	0.046	0.036	0.045
63	MILTON	0.022	0.024	0.033	0.026	0.023	0.036	0.020
64	MORTON	0.035	0.034	0.050	0.033	0.044	0.045	0.044
65	MOUNT AUBURN	0.035	0.041	0.033	0.037	0.041	0.030	0.032
66	NANTUCKET	0.033	0.034	0.039	0.024	0.060	0.022	0.060
67	NASHOBA COMMUNITY	0.028	0.026	0.031	0.039	0.025	0.040	0.036
68	NEW ENGLAND BAPTIST	0.019	0.009	0.005	0.010	0.014	0.016	0.010
69	NEW ENGLAND DEACONESS	0.017	0.016	0.021	0.018	0.021	0.030	0.018
70	NEW ENGLAND MEDICAL CENTER	0.075	0.078	0.061	0.057	0.068	0.047	0.051
71	NEW ENGLAND MEMORIAL	0.024	0.029	0.017	0.046	0.026	0.029	0.022
72	NEWTON/WELLESLEY	0.026	0.024	0.020	0.020	0.026	0.026	0.023
73	NOBLE	0.031	0.038	0.043	0.029	0.039	0.034	0.035
74	NORTH ADAMS REGIONAL	0.033	0.030	0.030	0.019	0.040	0.031	0.039
75	NORTH SHORE CHILDRENS	0.041	0.031	0.022	0.038	0.037	0.051	0.053
76	NORWOOD	0.030	0.031	0.030	0.026	0.024	0.026	0.025
77	PARKWOOD/UNION OF NB	0.035	0.036	0.019	0.023	0.024	0.025	0.036
78	PROVIDENCE	0.040	0.040	0.020	0.031	0.034	0.039	0.044
79	QUINCY CITY	0.031	0.032	0.052	0.047	0.029	0.042	0.041
80	SALEM	0.060	0.029	0.034	0.030	0.031	0.039	0.040
81	SANCTA MARIA	0.020	0.021	0.016	0.024	0.022	0.031	0.029
82	SOMERVILLE	0.062	0.071	0.066	0.064	0.083	0.061	0.070
83	SOUTH SHORE	0.023	0.025	0.024	0.028	0.035	0.036	0.032
84	ST ANNES OF FALL RIVER	0.025	0.032	0.031	0.042	0.027	0.036	0.038
85	ST ELIZABETHS	0.039	0.040	0.040	0.043	0.041	0.039	0.037
86	ST JOHNS OF LOWELL	0.019	0.026	0.021	0.023	0.023	0.027	0.019
87	ST JOSEPHS	0.047	0.037	0.042	0.037	0.032	0.017	0.031
88	ST LUKES OF MIDDLEBORO	0.044	0.029	0.041	0.021	0.050	0.037	0.039
89	ST LUKES OF NEW BEDFORD	0.036	0.041	0.034	0.050	0.045	0.051	0.044
90	ST MARGARETS	0.070	0.071	0.071	0.072	0.099	0.092	0.098
91	ST VINCENT	0.033	0.030	0.030	0.030	0.037	0.036	0.038
92	STURDY MEMORIAL	0.040	0.047	0.025	0.026	0.034	0.034	0.026
93	TOBEY	0.032	0.023	0.040	0.035	0.032	0.067	0.043
94	U MASS MED CTR	0.042	0.061	0.052	0.016	0.036	0.026	0.039
95	UNION OF LYNN	0.098	0.063	0.087	0.076	0.091	0.076	0.079
96	UNIVERSITY	0.031	0.023	0.036	0.034	0.029	0.043	0.029
97	WALTHAM	0.039	0.036	0.032	0.034	0.033	0.031	0.026
98	WHIDDEN MEMORIAL	0.021	0.003	0.038	0.038	0.025	0.047	0.038
99	WINCHESTER ACUTE	0.015	0.011	0.022	0.024	0.022	0.018	0.018
100	WING MEMORIAL	0.032	0.019	0.051	0.039	0.047	0.030	0.038
101	WINTHROP	0.050	0.036	0.050	0.064	0.057	0.030	0.023
102	WORCESTER CITY	0.053	0.069	0.071	0.079	0.056	0.157	0.120
103	WORCESTER HAHNEMANN	0.037	0.074	0.038	0.036	0.034	0.029	0.030
104	WORCESTER MEMORIAL	0.024	0.026	0.032	0.030	0.030	0.034	0.030

funded managed care demonstration project which provided reimbursement to BCH for uninsured poor enrollees. The demonstration project ended on January 1, 1984. After that point hospital care for the approximately 6,000 uninsured poor enrollees was charged to the free care account. Thus, in 82 and 83 charges to BHP patients were not counted as free care, while for nine months of FY' 84 such charges were counted as free care. Since BHP accounts for approximately 6% of BCH's charges, it is evident that most of the increase in free care from 83 to 84 is explained by this change in accounting mechanism. Further, note that a substantial part of the statewide increase in BDFC percentage in 1983 comes from the blip in BDFC percentage at Brigham and Womens Hospital, where BDFC increased from 6.1% in 1982 to 8.5% in 1983 and decreased to 6.5% in 1984. Conversations with staff at Brigham and Womens have produced no explanation for this blip.

These hospital specific data are summarized, by HSA and subarea, in Table B-2. This summary indicates that BDFC in central Boston (HSA 4, subarea 1) is substantially higher than the statewide average. Further, it is clear that the statewide increase in BDFC from '76 to '78 was driven by a large increase in the Boston area, and that the relative stability in statewide BDFC from 1978 through 1984 is paralleled by relative stability in BDFC in most subareas of the state.

HSA/SUBAREA \ Year	'76	'77	'78	'79	'80	'81	'82	'83	'84
1, Total	3.8	4.8	4.5	4.8	4.5	4.3	4.0	4.4	4.6
1,1	2.7	3.5	3.3	3.3	3.2	3.0	3.4	3.6	4.0
1,2	1.0	2.2	2.8	2.5	2.2	2.7	2.2	2.7	3.7
1,3	5.5	5.9	5.2	5.7	5.3	5.0	4.6	5.1	5.0
2, Total	3.1	3.2	3.4	4.1	3.9	3.4	3.7	4.1	4.3
2,1	3.4	3.1	3.2	3.4	3.5	3.4	3.2	3.1	3.8
2,2	2.5	3.1	3.5	4.4	4.1	3.2	3.6	4.4	4.4
2,3	5.5	3.9	3.6	3.8	3.9	4.1	4.4	4.0	4.3
3, Total	3.2	3.6	3.3	3.3	3.0	3.6	3.6	3.5	3.8
3,1	2.9	6.1	3.3	3.7	4.1	4.8	4.4	4.7	4.0
3,2	4.0	3.3	4.0	3.6	2.7	3.6	3.7	4.0	4.4
3,3	2.6	2.5	2.8	2.8	2.7	2.9	3.0	2.5	3.1
4, Total	4.1	4.5	5.9	6.2	6.1	5.8	6.2	6.5	6.0
4,1	4.4	5.1	6.8	7.1	7.0	6.7	7.1	7.4	7.0
4,2	4.6	3.6	5.0	5.4	4.6	4.6	5.5	5.7	5.0
4,3	2.4	2.7	3.2	2.8	3.0	2.7	3.3	3.0	2.8
4,4	2.3	2.4	3.0	3.1	3.0	2.6	2.4	2.6	2.5
4,5	2.1	3.3	2.6	2.8	3.6	3.5	3.1	3.8	3.3
5, Total	2.5	3.0	3.2	3.2	3.4	3.6	3.3	4.1	3.9
5,1	3.4	3.8	3.8	3.9	3.9	2.9	4.5	3.9	3.6
5,2	2.5	2.7	3.4	3.5	4.2	4.6	3.8	5.0	4.8
5,3	2.5	3.3	3.0	3.0	2.9	3.6	3.0	3.7	3.4
5,4	1.9	2.6	2.4	2.3	2.3	2.3	2.2	3.2	3.5
6, Total	2.8	3.8	3.9	3.3	3.6	4.4	4.1	4.3	4.1
6,18	3.4	5.4	3.8	3.9	3.6	3.8	4.4	3.5	3.8
6,19	4.0	4.6	5.7	4.5	4.4	5.0	4.9	5.4	5.3
6,20	1.4	2.3	1.0	2.0	2.8	4.1	3.0	3.4	3.0
State Total	3.6	4.1	4.9	5.1	5.0	4.9	5.1	5.4	5.2

Source: RSC 401 and 403 reports for FY' 76-81; MAC reports for FY' 82-84.

APPENDIX C:

MEDICAID CASELOAD DATA AND ADJUSTMENTS

Data on the number of Medicaid cases, by month and type of eligibility, was furnished by the Budget Office at the Department of Public Welfare. These data are summarized, by hospital fiscal year, in Table C-1 for 1981-1984. As can be seen there, the 9.7% decline in Medicaid caseload from hospital fiscal year (HFY) '81 to HFY '82 was concentrated in the AFDC caseload, which declined by almost 16%. Similarly, the 7% decline in total Medicaid caseload from HFY 82 to HFY 83 was concentrated in the AFDC caseload, which declined by almost 13%, and the 2% increase in caseload from HFY 83 to HFY 84 was composed of a 3% decrease in AFDC cases combined with increases in most of the other categories of eligibility.

Table C-2 shows the average inpatient and outpatient expenditures per case in state FY'82. As can be seen there, average inpatient and outpatient expenditures varied widely across case types, as would be expected given the difference in the average number of recipients per case, the health needs of individuals, and in the extent to which Medicaid (as opposed to Medicare) reimburses for hospital services for individuals with differing eligibility status. Given this variation, it is important to control for changes in the composition of the caseload over time in deriving expectations concerning the expected change in hospital utilization as a result of changes in

Table C-1

Average Monthly Medicaid Caseload

By Category of Assistance

Hospital Fiscal 1981-1984

Hospital Fiscal Year

Category of Assistance	`81	`82	% Change `81-82	`83	% Change `82-83	`84	% Change `83-84
AFDC	122287	103025	-15.8	89808	-12.8	87002	-3.1
SSI/OAA	64051	57977	- 9.5	54134	- 6.6	53534	-1.1
SI/DA	51884	50250	- 3.2	49233	- 2.0	50331	2.2
MA/OAA	41485	39004	- 6.0	39519	1.3	39008	-1.3
MA/DA	8619	7736	-10.2	7525	- 2.7	8572	13.9
MA/AFDC	8506	10727	26.1	7780	-27.5	11832	52.1
MA/Under 21	8372	7009	-16.3	8433	20.3	11110	31.7
Total	305203	275728	- 9.7%	256433	- 7.0%	261388	1.9%

Source: Department of Public Welfare, Budget Office

Table C-2

Inpatient and Outpatient Acute Hospital Expenditures
Per Case, by Category of Assistance
State Fiscal Year, 1982

Category of Assistance	Inpatient Expenditures Per Case	Outpatient Expenditures Per Case	Inpatient Weight	Outpatient Weight
AFDC	$ 862	$ 485	1.02	1.69
SSI/DAA	337	26	0.40	0.09
SSI/DA	1209	313	1.42	1.09
MA/OAA	504	14	0.60	0.05
MA/DA	2284	243	2.71	0.84
MA/AFDC	1532	429	1.82	1.49
MA/Under 21	1840	660	2.18	2.30
Total	$ 843	$ 287		

Source: Medicaid Data Book, August, 1983, Department of Public Welfare Tables II-15, II-5

the size of the caseload. Inpatient and outpatient weights are computed separately for each category of eligibility by dividing the average expenditure per case by the average expenditure for all Medicaid cases for that type of service. The results, shown in columns 4 and 5 of Table C-2, are simply a linear transformation of the dollars per case figures.

These weights are then used to compute adjusted caseload estimates by multiplying the caseload in a given eligibility category by its inpatient or outpatient weight, and then summing across eligibility categories. Since the inpatient weight for the AFDC category is close to 1.0, the caseload decline adjusted for inpatient utilization patterns should be similar to the unadjusted data, and the results in Table C-3 show that this is indeed the case. However, since AFDC cases are significantly heavier than average users of outpatient services, the AFDC caseload decline adjusted for outpatient utilization should be significantly larger than the unadjusted caseload decline, which again is borne out of Table C-3.

To summarize, if utilization of inpatient services per Medicaid case in each eligibility category did not change from HFY '81 to HFY '82, then we should expect an 8.9 % decline in inpatient utilization during this time period, and a 11.5% decline in outpatient utilization during this same period.

TABLE C-3

CHANGE IN MEDICAID CASELOAD,
BY HOSPITAL FISCAL YEAR, 81-84
UNWEIGHTED AND WEIGHTED BY UTILIZATION HISTORY

Hospital FYs	Unweighted	Weighted by Inpatient Utilization Pattern	Weighted by Outpat. Utilization Pattern
81-82	-9.7%	-8.9%	-11.5%
82-83	-7.0%	-6.8%	-9.1%
83-84	+1.9%	+5.5%	+3.8%

Source: Medicaid caseload data from Department of Public Welfare Budget Bureau. Columns 2 and 3 show caseload changes where category of recipient is weighted by average utilization.

APPENDIX D

MEDICAID UTILIZATION DATA

There are two general sources of data on utilization of hospital sources by Medicaid recipients: The Department of Public Welfare, which has information on paid claims for Medicaid recipients, and the Rate Setting Commission, which gathers information on utilization on a variety of reports. Unfortunately, the Department of Public Welfare does not have reliable reports, by hospital, on the number of days and admissions for Medicaid recipients prior to FY' 84. Most of the older Medicaid-generated reports focus an expenditures, rather than utilization. Further complicating the situation, in the beginning of hospital fiscal year 1984 Medicaid switched from a claims processing system at Westboro to a Medicaid Management Information System (MMIS), and any comparisons of pre-MMIS data with post-MMIS data are suspect.

The Rate Setting Commission has three data sources on Medicaid utilization. First, the Rate Setting Commission collects data on the number of patient days and discharges, by payor source, on Schedule V of the RSC 403 cost report. This report, filed annually, is the major report on hospitals' cost data. However, the information on Schedule V is not used for reimbursement purposes, and is not seriously audited. Most hospitals do not keep logs on utilization by payor source, and thus the data on Schedule V, in many cases, has been estimated by hospital personnel, and in some cases is missing entirely.

A second source of RSC information on Medicaid utilization cases from a special one-page survey that was mailed to hospitals in November, 1982, and again in November, 1983. This survey was used to establish the Medicaid payment ratio for FY' 82 and FY' 83, and thus has direct reimbursement consequences. The survey asks for days, by type (acute, newborn, chronic, and administratively necessary) for Medicaid recipients and for the hospital as a whole. The 1982 survey gathered this information for FY' 81 and FY' 82. The 1983 survey collected this information for FY' 82 and FY' 83.

The fact that these data are used for reimbursement purposes has two likely consequences: first, that hospitals might be more prone to attempt to game the system by deriving estimates in ways that will be favorable to the hospital; and second, hospitals, knowing that these data may be subject to audit, might be careful to report data that is close to being accurate. It is impossible to know, a priori, which of these two motivations will be stronger, and whether we should expect the RSC 403 or the special survey data to be more accurate.

The special survey data has the advantage of being more complete than the RSC 403 data. There are only three hospitals that are missing special survey data for FY' 82 or FY' 83, while there are 33 hospitals in which the number of Medicaid days is missing from either the FY' 82 or the FY' 83 RSC 403 report.

For the 65 hospitals with valid data from both the special survey and the RSC 403, a comparison of the FY' 82 and FY' 83 data are shown in Table D-1. As can be seen there, in both 82

Table D-1

Medicaid Inpatient Days, FY'82 and FY'83
Special Survey and RSC 403 compared

		special survey	RSC 403
Medicaid Days	FY'82	596409	510348
Medicaid Days	FY'83	544253	499822
% Change 82 to 83		-8.8%	-2%

N = 65, includes only hospitals with valid data from both data sources

and 83 the special survey data indicate many more days than the RSC 403 data. (In large part, this is probably due to the format of the RSC 403 Schedule V, which includes a line for ANDs below the line for total Medicaid days. Some hospitals may have incorrectly excluded ANDs from total Medicaid days). More importantly, for our purposes, the two data sets show quite different trends for the FY' 82 to FY' 83 change in Medicaid days; the special survey data suggest that Medicaid days declined by almost 9% from FY' 82 to FY' 83, while the RSC 403 data suggest a scant 2% decline.

Comparison of the changes in days from 82 to 83 in the two data sets provides some reasons for believing that the special survey data provides a more accurate estimate than the RSC data of the change in days from 82 to 83. For each data set we compiled a measure of the percentage change in days from 82 to 83. That is:

$$\% \text{ Change (special)} = \frac{\text{DAYS 83 (special)} - \text{DAYS 82 (special)}}{\text{DAYS 82 (special)}}$$

$$\% \text{ Change (403)} = \frac{\text{DAYS 83 (403)} - \text{DAYS 82 (403)}}{\text{DAYS 82 (403)}}$$

The values of % Change (special) and % Change (403) were then compared for each hospital. If these values were 'reasonably' close (defined operationally as being different by no more than .15) then the hospital was classified as a hospital in which the two data sets 'agreed' on the 82 to 83 trend. If the values of % Change (special) and % Change (403) differed by more than .15, then the hospital was classifed as a

hospital in which the data sets disagreed on the 82 to 83 trend.

For the hospitals in which the data agreed on the trend, the aggregate change in days was virtually the same in the two data sets: an 8.6% decline in days between 82 and 83 in the special survey data, and an 8.8% decline in the 403 data. However, for the 23 hospitals in which the data sets disagreed, the aggregate change in days was markedly different: a 9.0% decline in days in the special survey data, and a 17.0% increase in the 403 data. This large increase in days in the 403 data is suspect, and suggests that in the instances in which the data sets disagree about the 82 to 83 trend, the special survey data is likely to be more reliable.

Regardless of which data set is closer, there is no suggestion that utilization of inpatient services by Medicaid recipients declined significantly during the first year of Chapter 372. As was shown in Appendix C, the (adjusted) Medicaid caseload declined by approximately 8% from 82 to 83. Thus, if we used the 403 estimates of a 2% decline in days, we would estimate that per recipient utilization increased by approximately 6%; using the special survey estimate of a 9% decline in days suggests virtually no change in per recipient utilization.

An additional advantage of the special survey data is that it exists for almost all hospitals, while the 403 data is

missing for nearly one-third of them. The hospital specific special survey data is shown in Table D-2. Summaries of this data for the whole state, and by HSA and Subarea, are shown in Table D-3.

TABLE D-2

**** MEDICAID INPATIENT DAYS, 1981-1983 *****

HSA=1 SUBAREA=1

HOSP NUMBER	HOSPITAL NAME	MEDICAID DAYS FY81	MEDICAID DAYS FY82	MEDICAID DAYS FY83	% CHANGE 82 TO 81	% CHANGE 83 TO 82
313	BERKSHIRE	13746	10108	9586	-0.265	-0.052
52	FAIRVIEW	1621	1145	593	-0.294	-0.482
120	FRANKLIN COUNTY	8331	.	.	.	.
231	HILLCREST	3104	.	.	.	.
61	NORTH ADAMS REGIONAL	5658	5494	4992	-0.029	-0.091

HSA=1 SUBAREA=2

HOSP NUMBER	HOSPITAL NAME	MEDICAID DAYS FY81	MEDICAID DAYS FY82	MEDICAID DAYS FY83	% CHANGE 82 TO 81	% CHANGE 83 TO 82
226	ATHOL	2226	3438	3034	0.544	-0.118
155	COOLEY/DICKENSON	6402	6653	6078	0.039	-0.086
53	FARREN MEMORIAL	796	1104	2044	0.387	0.851

HSA=1 SUBAREA=3

HOSP NUMBER	HOSPITAL NAME	MEDICAID DAYS FY81	MEDICAID DAYS FY82	MEDICAID DAYS FY83	% CHANGE 82 TO 81	% CHANGE 83 TO 82
339	BAYSTATE	53270	57076	53794	0.071	-0.058
145	HOLYOKE	14240	13492	16538	-0.053	0.226
160	LUDLOW	725	579	437	-0.201	-0.245
148	MARY LANE	.	2464	2210	.	-0.103
149	MERCY	6824	9603	5501	0.407	-0.427
76	NOBLE	8209	10479	4374	0.277	-0.583
150	PROVIDENCE	12901	10037	10094	-0.222	0.006
181	WING MEMORIAL	1678	1855	2091	0.105	0.127

HSA=2 SUBAREA=1

HOSP NUMBER	HOSPITAL NAME	MEDICAID DAYS FY81	MEDICAID DAYS FY82	MEDICAID DAYS FY83	% CHANGE 82 TO 81	% CHANGE 83 TO 82
34	BURBANK	12000	10838	8274	-0.097	-0.237
126	CLINTON	1498	3032	1775	1.024	-0.415
36	HENRY HEYWOOD	6218	7119	5410	0.145	-0.240
127	LEOMINSTER	2724	3907	2870	0.434	-0.265
298	NASHOBA COMMUNITY	1594	1704	1743	0.069	0.023

TABLE D-2 (cont'd)

HSA=2 SUBAREA=2

HOSP NUMBER	HOSPITAL NAME	MEDICAID DAYS FY81	MEDICAID DAYS FY82	MEDICAID DAYS FY83	% CHANGE 82 TO 81	% CHANGE 83 TO 82
98	FAIRLAWN	3311	1657	1591	-0.500	-0.040
110	HOLDEN DISTRICT	1564	1035	870	-0.306	-0.198
128	ST VINCENT	9031	9521	8714	-0.032	-0.085
841	U MASS MED CTR	10081	9085	11156	-0.099	0.228
125	WORCESTER CITY	8635	8444	7796	-0.022	-0.077
77	WORCESTER HAHNEMANN	7720	6750	5824	-0.132	-0.137
124	WORCESTER MEMORIAL	13127	11444	10734	-0.128	-0.062

HSA=2 SUBAREA=3

HOSP NUMBER	HOSPITAL NAME	MEDICAID DAYS FY81	MEDICAID DAYS FY82	MEDICAID DAYS FY83	% CHANGE 82 TO 81	% CHANGE 83 TO 82
143	HARRINGTON MEMORIAL	4281	3651	3870	-0.252	0.060
157	HUBBARD REGIONAL	3802	1502	1382	-0.605	-0.080
105	MILFORD/WHITINSVILLE	8957	7949	7316	-0.113	-0.080

HSA=3 SUBAREA=1

HOSP NUMBER	HOSPITAL NAME	MEDICAID DAYS FY81	MEDICAID DAYS FY82	MEDICAID DAYS FY83	% CHANGE 82 TO 81	% CHANGE 83 TO 82
78	AMESBURY	.	776	750	.	-0.034
6	ANNA JAQUES	3973	5761	6377	0.450	0.107
131	HALE/HAVERHILL	5550	5955	7787	0.073	0.308

HSA=3 SUBAREA=2

HOSP NUMBER	HOSPITAL NAME	MEDICAID DAYS FY81	MEDICAID DAYS FY82	MEDICAID DAYS FY83	% CHANGE 82 TO 81	% CHANGE 83 TO 82
225	BON SECOURS	7248	7914	8759	0.092	0.107
99	LAWRENCE GENERAL	11857	10037	9903	-0.153	-0.013

HSA=3 SUBAREA=3

HOSP NUMBER	HOSPITAL NAME	MEDICAID DAYS FY81	MEDICAID DAYS FY82	MEDICAID DAYS FY83	% CHANGE 82 TO 81	% CHANGE 83 TO 82
40	LOWELL	10865	12287	11694	0.195	-0.100
29	ST JOHNS OF LOWELL	6556	8529	7805	0.312	-0.092
63	ST JOSEPHS	6969	5918	5882	-0.151	-0.006

HSA=4 SUBAREA=1

HOSP NUMBER	HOSPITAL NAME	MEDICAID DAYS FY81	MEDICAID DAYS FY82	MEDICAID DAYS FY83	% CHANGE 82 TO 81	% CHANGE 83 TO 82
69	BETH ISRAEL	22205	19348	17710	-0.132	-0.085
307	BOSTON CITY	45766	46965	45130	0.026	-0.039
921	BRIGHAM/WOMENS	31695	32934	33242	0.039	0.009
31	BROOKLINE	755	722	398	-0.044	-0.449
3	CARNEY	15884	14130	13009	-0.110	-0.079
139	CHILDRENS	25121	24029	22760	-0.043	-0.053
335	DANA FARBER	760	565	734	-0.257	0.299
43	FAULKNER	7545	6833	5840	-0.094	-0.145
91	HAHNEMANN OF BOSTON	1361	.	.	.	.
57	HCHP/PARKER HILL	1679	458	488	-0.727	0.066
43	HUNTINGTON GENERAL	3094	2507	2507	-0.356	0.000
167	MASS EYE AND EAR	2469	3047	2401	0.142	-0.212
168	MASS GENERAL	22161	21783	19820	-0.017	-0.090
59	NEW ENGLAND BAPTIST	1933	1477	1756	-0.236	0.189
92	NEW ENGLAND DEACONESS	9522	9599	6056	0.008	-0.369
299	NEW ENGLAND MEDICAL CENTER	28531	27317	25713	0.030	-0.059
85	ST ELIZABETHS	11339	13096	11775	0.226	-0.153
65	ST MARGARETS	10906	11851	11606	0.087	-0.021
84	UNIVERSITY	19430	20918	18708	0.077	-0.106
13	WINTHROP	2698	1549	2589	-0.426	0.671

HSA=4 SUBAREA=2

HOSP NUMBER	HOSPITAL NAME	MEDICAID DAYS FY81	MEDICAID DAYS FY82	MEDICAID DAYS FY83	% CHANGE 82 TO 81	% CHANGE 83 TO 82
108	CAMBRIDGE CITY	.	9046	6907	.	-0.236
119	CENTRAL	12292	10955	11599	-0.109	0.059
89	CHOATE/SYMMES	4449	5178	4977	0.164	-0.039
18	EMERSON	4120	3116	2305	-0.244	-0.260
33	LANEY/BROOKS	1355	1675	1583	0.236	-0.055
71	MOUNT AUBURN	4830	4529	3653	-0.062	-0.193
213	SANCTA MARIA	1659	2236	1704	0.348	-0.238
1	SOMERVILLE	6336	6339	5687	0.000	-0.103
94	WINCHESTER ACUTE	2606	2510	1963	-0.037	-0.218

HSA=4 SUBAREA=3

HOSP NUMBER	HOSPITAL NAME	MEDICAID DAYS FY81	MEDICAID DAYS FY82	MEDICAID DAYS FY83	% CHANGE 82 TO 81	% CHANGE 83 TO 82
20	FRAMINGHAM UNION	11334	5220	4763	-0.539	-0.088
54	GLOVER MEMORIAL	2791	1213	1008	-0.565	-0.169
39	LEONARD MORSE	7684	6710	4517	-0.127	-0.327
103	MARLBOROUGH	6178	4335	4216	-0.298	-0.027
75	NEWTON/WELLESLEY	5214	4746	5046	-0.090	0.063
67	WALTHAM	11324	10539	7202	-0.069	-0.317

TABLE D-2 (cont'd)

HSA=4 SUBAREA=4

HOSP NUMBER	HOSPITAL NAME	MEDICAID DAYS FY81	MEDICAID DAYS FY82	MEDICAID DAYS FY83	% CHANGE 82 TO 81	% CHANGE 83 TO 82
114	NORWOOD	7327	7428	6955	0.014	-0.064

HSA=4 SUBAREA=5

HOSP NUMBER	HOSPITAL NAME	MEDICAID DAYS FY81	MEDICAID DAYS FY82	MEDICAID DAYS FY83	% CHANGE 82 TO 81	% CHANGE 83 TO 82
227	MILTON	1512	1466	1919	-0.030	0.309
151	QUINCY CITY	9157	7001	6679	-0.235	-0.046
107	SOUTH SHORE	5128	5307	5137	0.035	-0.032

HSA=5 SUBAREA=1

HOSP NUMBER	HOSPITAL NAME	MEDICAID DAYS FY81	MEDICAID DAYS FY82	MEDICAID DAYS FY83	% CHANGE 82 TO 81	% CHANGE 83 TO 82
22	MORTON	10169	8751	9032	-0.139	0.032
86	ST LUKES OF MIDDLEBORO	2728	1334	1690	-0.493	0.221
100	STUPDY MEMORIAL	4736	4222	4735	-0.109	0.133

HSA=5 SUBAREA=2

HOSP NUMBER	HOSPITAL NAME	MEDICAID DAYS FY81	MEDICAID DAYS FY82	MEDICAID DAYS FY83	% CHANGE 82 TO 81	% CHANGE 83 TO 82
118	BROCKTON	12987	13367	14200	0.029	0.062
311	CARDINAL CUSHING	8202	6963	5730	-0.159	-0.177
101	GODDARD MEMORIAL	12626	11302	12149	-0.119	0.074
82	JORDAN	3616	3908	4014	0.081	0.232

HSA=5 SUBAREA=3

HOSP NUMBER	HOSPITAL NAME	MEDICAID DAYS FY81	MEDICAID DAYS FY82	MEDICAID DAYS FY83	% CHANGE 82 TO 81	% CHANGE 83 TO 82
337	CHARLTON	17996	19684	15186	0.094	-0.229
260	PARKWOOD/UNION OF NB	5096	4685	4448	-0.081	-0.051
11	ST ANNES OF FALL RIVER	8730	7918	7251	-0.093	-0.084
10	ST LUKES OF NEW BEDFORD	27158	26286	21823	-0.032	-0.170
106	TOBEY	2567	4319	2574	0.683	-0.404

HSA=5 SUBAREA=4

HOSP NUMBER	HOSPITAL NAME	MEDICAID DAYS FY81	MEDICAID DAYS FY82	MEDICAID DAYS FY83	% CHANGE 82 TO 81	% CHANGE 83 TO 82
135	CAPE COD	11152	7786	7255	-0.302	-0.068
289	FALMOUTH	3649	2978	2090	-0.184	-0.298

****** MEDICAID INPATIENT DAYS, 1981-1983 *******

HSA=5 SUBAREA=4

HOSP NUMBER	HOSPITAL NAME	MEDICAID DAYS FY81	MEDICAID DAYS FY82	MEDICAID DAYS FY83	% CHANGE 82 TO 81	% CHANGE 83 TO 82
44	NANTUCKET	4983	2185	2604	-0.562	0.192

HSA=6 SUBAREA=18

HOSP NUMBER	HOSPITAL NAME	MEDICAID DAYS FY81	MEDICAID DAYS FY82	MEDICAID DAYS FY83	% CHANGE 82 TO 81	% CHANGE 83 TO 82
16	ADDISON GILBERT	4820	6015	6303	0.248	0.048
7	BEVERLY	8440	7939	5963	-0.059	-0.249
93	HUNT MEMORIAL	3454	3502	3072	0.014	-0.123

HSA=6 SUBAREA=19

HOSP NUMBER	HOSPITAL NAME	MEDICAID DAYS FY81	MEDICAID DAYS FY82	MEDICAID DAYS FY83	% CHANGE 82 TO 81	% CHANGE 83 TO 82
171	JB THOMAS	4080	3812	3127	-0.066	-0.180
73	LYNN	19728	17933	14856	-0.091	-0.172
4	MARY A ALLEY	812	851	648	0.048	-0.239
113	NORTH SHORE CHILDRENS	5405	5593	5192	0.035	-0.072
14	SALEM	14097	12929	12113	-0.083	-0.063
8	UNION OF LYNN	13860	5398	3762	-0.611	-0.303

HSA=6 SUBAREA=20

HOSP NUMBER	HOSPITAL NAME	MEDICAID DAYS FY81	MEDICAID DAYS FY82	MEDICAID DAYS FY83	% CHANGE 82 TO 81	% CHANGE 83 TO 82
38	LAWRENCE MEMORIAL	6423	2824	2201	-0.560	-0.221
41	MALDEN	7412	7763	7183	0.047	-0.075
58	MELROSE/WAKEFIELD	10378	8075	7165	-0.222	-0.110
60	NEW ENGLAND MEMORIAL	4709	10219	9818	1.170	-0.039
46	WHIDDEN MEMORIAL	6925	3382	2223	-0.512	-0.343

TABLE D-3

**** MEDICAID INPATIENT DAYS SUMMARY, 1981-1983 *****

TYPE=0

OBS	HSA	SUBAREA	MEDICAID DAYS FY83	MEDICAID DAYS FY82	MEDICAID DAYS FY81	% CHANGE 83 TO 82	% CHANGE 82 TO 81
1	.	.	779111	848326	892404	-0.08159	-0.049392

TYPE=2

OBS	HSA	SUBAREA	MEDICAID DAYS FY83	MEDICAID DAYS FY82	MEDICAID DAYS FY81	% CHANGE 83 TO 82	% CHANGE 82 TO 81
2	1	.	119156	131063	128296	-0.09085	0.02157
3	2	.	79325	87688	96003	-0.09537	-0.08661
4	3	.	58207	57171	53018	0.01812	0.07833
5	4	.	323155	350431	367869	-0.07784	-0.04740
6	5	.	115622	125738	136675	-0.08045	-0.08002
7	6	.	83646	96235	110543	-0.13082	-0.12943

TYPE=3

OBS	HSA	SUBAREA	MEDICAID DAYS FY83	MEDICAID DAYS FY82	MEDICAID DAYS FY81	% CHANGE 83 TO 82	% CHANGE 82 TO 81
8	1	1	15171	16747	21025	-0.09411	-0.20347
9	1	2	11156	11195	9424	-0.00348	0.18792
10	1	3	92829	103121	97847	-0.09981	0.05390
11	2	1	20072	26600	24034	-0.24541	0.10677
12	2	2	46685	47926	54329	-0.02711	-0.11675
13	2	3	12568	13102	17640	-0.04076	-0.25726
14	3	1	14164	11716	9523	0.20895	0.23028
15	3	2	18662	17951	19105	0.03961	-0.06040
16	3	3	25381	27504	24390	-0.07719	0.12768
17	4	1	242242	259928	262573	-0.06804	-0.01007
18	4	2	33471	36538	37647	-0.08394	-0.02946
19	4	3	26752	32763	44525	-0.18347	-0.26417
20	4	4	6955	7428	7327	-0.06368	0.01378
21	4	5	13735	13774	15797	-0.00283	-0.12806
22	5	1	15507	14357	17633	0.08010	-0.18579
23	5	2	36884	35540	37711	0.03782	-0.05757
24	5	3	51282	62892	61547	-0.18460	0.02185
25	5	4	11949	12949	19784	-0.07723	-0.34548
26	6	18	15338	17456	16714	-0.12133	0.04439
27	6	19	39698	46516	57982	-0.14657	-0.19775
28	6	20	28610	32263	35347	-0.11323	-0.09998

APPENDIX E

HOSITAL DISCHARGE DATA

Comparison of MHDC and RSC Data

The basic data consists of one record for each inpatient discharge from Massachusetts hospitals for dates of discharge during during hospital fiscal year 1982 (952,345 records in total). The data were furnished by Massachusetts Rate Setting Commission, which collects the data from individual hospitals and merges the individual hospital data into a single data file. Those data are similar, although not exactly the same as, the data set that has been extensively analyzed by the Massachusetts Health Data Consortium (MHDC). The differences are primarily in the scope of hospitals covered; the MHDC data set includes eight Massachusetts hospitals which are not included in the RSC data base. However, seven of these eight serve primarily chronic and nursing home level patients (five Veteran's Administration hospitals, Lemuel Shattuck, and Kennedy Memorial for Children), and thus excluding them from the patient origin analysis is entirely appropriate. The eighth, Southwood Community, has data for only eight months in the MHDC data set, and is missing entirely in the RSC data set. In addition, the MHDC data include information or discharges of Massachusetts residents from hospitals in Connecticut, Maine, New York City, Albany County, New York, and Rhode Island, while the RSC data do not. With the partial exception of some localities in Southeastern

Massachusetts, exclusion of these border State hospitals will have negligible effects on any of the patient origin results reported in this paper.

Of the 110 hospitals in both data sets, there are four hospitals with different data. Two of these, Central Hospital in Cambridge and St. Elizabeth's in Boston, were missing blocks of discharges (three months for Central, one month for St. Elizabeth') in the RSC data. Although these two hospitals resubmitted corrected data to the RSC, these corrected data were not available for this paper. To correct this problem, I have weighted the data for these two hospitals to reflect the number of discharges in the MHDC data set. A third hospital, New England Medical Center, had 12.5% fewer discharges in the RSC then in the MHDC data set, and was similarly weighted in the analysis. Unlike Central and St. Elizabeth's, however, NEMC was not requested to resubmit data, and is not missing discharges from any month, but appears rather to have 12.5% fewer discharges in each month than in the MHDC data. The distributions of discharges by payor mix, patient origin, age, and hospital service are nearly identical in the two data sets for NEMC; therefore, whatever the cause of the discrepancy in the number of discharges, it is not likely to bias any of the analyses performed here. Finally, St. Vincent's in Worcester has a psychiatric unit, and the discharges from this unit are on the MHDC but not the RSC data set. No adjustment has been made to account for this exclusion.

The municipal hospitals reported data for 15 months of discharges. To maximize comparability with MHDC analyses, I have used the same 12 months of discharges used by the MHDC (see Appendix D of the MHDC Methodology for study years.)

Coding of Service Categories and Town listings

In order to maximize comparability with MHDC analyses, coding of service categories (ob/maternity, medical/surgical, pediatric and psychiatry) used the same procedures followed by the MHDC. This coding system used the principal diagnosis, rather than the DRG, to establish service category. Discharges were coded as ob/maternity if the principal diagnosis was an ICD-9-CM code in the following ranges:

V22.0 - V24.2
V27.0 - V27.9
630 0 676.94

To avoid double counting discharges of newborns (principal diagnosis V30.0 - V37.2; V39.0 - V39.2; 768.0; 768.1) were excluded from the analyses. Discharges were coded as psychiatric if the principal diagnosis was in the range:

290.0 - 290.0

293.- - 302.9

306.0 - 316

Discharges not coded as ob/maternity or psychiatric were

treated as medical/surgical. Discharges of patients under age 15 were coded as pediatric; those 15 or over as adults, regardless of whether the patient was in a pediatric bed (see pages 4-6 of the MHDC methodology for details).

Zipcodes were assigned to towns, and to neighborhoods in large cities, using the town/neighborhood to zipcode match shown in Appendix G of the MHDC methodology. There are two hospitals in which over 2% of the discharges are missing a zipcode designation (Massachusetts General Hospital, missing 3.2%, and New England Memorial, missing 2.0%). In general, the quality of the zipcode data seems quite high.

Expected Payor Source

Each discharge abstract includes a field for "expected principal payor". This field, which is generally coded at time of discharge, apparently is not, at many hospitals, updated with information from the billing office if the actual payor ends up being different from the expected payor. The categories used for expected payor are: Medicaid, Medicare, Blue Cross, commercial insurance, HMO, Industrial Accident, other government payor, self-pay, free care and other. Unfortunately, virtually none of the discharges (less than 0.1%) are coded as free care (see Table E-1). Discharges of uninsured patients will predominantly be coded as self-pay, although some may be coded as "commerical insurance" (if the patient claims to have commercial insurance which later turns out to either not exist or not cover the hospitalization) or "other".

TABLE E-1

Discharges and Days by Expected Payor Source, FY'82 (a)

Expected Payor	Number of Discharges	%	Number of Days	%
Medicare	284441	30.3%	3,704,749	47.2%
Medicaid	93073	9.9	661,248	8.4
Blue Cross	303070	32.3	1,945,289	24.8
Commerical	155839	16.6	891,770	11.4
Self-Pay	48288	5.2	299,299	3.8
Industrial Accident	14689	1.6	98,487	1.3
Other Government	9641	1.0	60,604	0.8
HMO	15495	1.7	96,334	1.2
Free Care	675	0.1	3,994	0.1
Other	11114	1.2	81,349	1.0
Total	937,225	99.9%	7,843,123	100%

(a) Includes newborns

The reasonableness of the expected payor field on the discharge data can be assessed by comparing the distribution of days, by payor, between the discharge data and the data reported on Schedule V of the RSC 403 cost report. As noted in Appendix D, the payor mix data from the 403 cost report is not used for reimbursement purposes, is not seriously audited, and is of questionable accuracy. Thus, if we find discrepancies between the discharge data and the 403 data, the existence of those discrepancies will not necessarily indicate the the discharge data provide inaccurate information.

For the 72 hospitals which had usable payor mix data on the RSC 403 report, the overall distribution of days, by payor, are reasonably similar in the 403 and the discharge data (see Table E-2). However, the discharge data contain many fewer days than the 403 data coded as "self-pay", and many more days coded as "other".

Notwithstanding the overall similarity of the payor distribution in the two data sets, there are two hospitals for which the discharge data clearly provide an inaccurate measure of the hospital's payor distribution (see Table E-3). At Massachusetts General Hospital, it appears that expected payor codes have been inverted: the discharge data show no commercially insured and no self-pay discharges, where there should be substantial numbers of each, and, conversely, show more HMO and "other" discharges than the 403 data. We adjust the MGH data in all the analyses performed in this paper by reclassifying all of the HMO discharges as commercial insurance, and reclassifying the "other" discharges as self-pay.

TABLE E-2

Comparison of Cost Report and Discharge Data

Payor Distribution, FY' 82 (a)

Payor Source	Number of days, RSC 403 Cost Report	Number of days, Discharge data	% Difference
Medicare	2,509,363	2,636,771	+5.1%
Medicaid	497,767	465,242	-6.6
Blue Cross	1,328,283	1,386,364	+4.4
Commercial	664,562	642,412	-3.4
Self-Pay	316,692	200,983	-36.6
Other (b)	131,287	245,268	+86.6
Total	5,546,743	5,577,040	+0.5%

(a) Includes data for 72 hospitals with valid 403 data; includes newborns.

(b) Includes HMO, industrial accident, other government payors, free care and other.

TABLE E-3

Comparison of Payor Distributions from Cost Report and Discharge Data, Massachusetts General Hospital and Boston City Hospital

	MGH		BCH	
	Days 403 Data	Days, Discharge Data	Days 403 Data	Days, Discharge Data
Medicare	40.0%	40.0%	23.6%	24.0%
Medicaid	6.3	7.4	32.6	39.5
Blue Cross	30.5	30.5	6.0	3.9
Commercial	13.9	0.0	3.0	6.4
Self-Pay	6.7	0.0	33.9	22.6
HMO	0	13.6	0	0
Other	2.6	6.0	0.9	3.5
Industrial Accident				
Other Govt.				
Free Care	0	2.5	0	0
TOTAL	100.0%	100%	100%	99.9%

The Boston City Hospital discharge data also provide an inaccurate picture of the payor mix at the hospital: the discharge data show that almost 40% of the days are Medicaid and only 22.6% self-pay, while the 403 data show that almost equal numbers are Medicaid and self-pay. Conversations with Boston City Hospital fiscal staff confirm that the payor distribution in the 403 data is correct and that the discharge data are incorrect. Apparently, Boston City Hospital uses a code for "awaiting Medicaid" for patients who are uninsured but who apply for Medicaid eligibility. Many of these patients do not become Medicaid eligible, and thus are self-pay. However, in processing the Boston City Hospital discharge data the "awaiting Medicaid" code was combined with the "Medicaid" code, and this probably accounts for a large part of the error in the payor distribution in the discharge data.

The discharge data apparently have approximately 20% too many discharges coded as Medicaid, and too few discharges coded as self-pay. We assume (for lack of a better assumption) that there are too many Medicaid and too few self-pay discharges from each zipcode that sends patients to Boston City Hospital. We correct the discharge data by subtracting 17% from the Medicaid discharge total in each zipcode and assigning these subtracted discharges to the self-pay category. To the extent that the 'extra' Medicaid discharges are not uniformly distributed across Boston City Hospital's service area this adjustment will not be entirely appropriate. However, it is difficult to construct convincing stories against a uniform distribution of the extra

Medicaid recipients. In any case, analysis produced with unadjusted data from Boston City Hospital does not result in substantively different conclusions from analysis produced with adjusted data.

Notwithstanding Boston City Hospital and Massachusetts General Hospital, the discharge data and RSC 403 cost reports provide similar data on payor distributions: based on 72 hospitals with valid data, the correlation between the percent of a hospital's days reported as Blue Cross from the 403 and discharge data is .922. The correlations between these two data sources for Medicaid, Medicare, self-pay, commercial insurance, and other are .943, .881, .887, .918 and .697, respectively.

Further, the discharge data "self-pay" category apparently provides a closer approximation to "uninsured poor" than the 403 data. These are two sources of support for this assertion. First, as was shown in Table E-2, in the discharge data 3.6% of all days are self-pay, compared to 5.7% in the 403 data. Since approximately 3.4% of all inpatient days generate bad debt or are provided as free care, the discharge data appear, in aggregate, to more closely approximate the overall bad debt/free care percentage. Second, the correlation between the percentage of a hospital's charges that are bad debt or free care with the percentage of a hospital's days that are self-pay is higher using the discharge data measurement of self-pay than the 403 measurement--.938 using the discharge data compared to .833 using the 403 data. This suggests that the discharge data designation of self-pay more closely corresponds to being uninsured and poor than the 403 designation of self-pay.

Constructing Market Share Tables

Let

D_{ikl} = the number of discharges of residents of town/locality i from hospital k whose expected payor source is l

and

$D_{i..}$ = the total number of discharges of residents of town/locality i

and

$D_{.k.}$ = the total number of discharges at hospital k

The market share for hospital k for a given payor group l in town i is defined as

$$M_{ikl} = D_{ikl}/D_{i.l}$$

The tables in Chapter 4 show market shares for Blue Cross and commercially insured patients combined, and for Medicaid recipients and the uninsured separately. However, in computing the "ratios", the market share of the Medicaid recipients and the uninsured is combined as follows:

$$M_{ikp} = (D_{ikm} + D_{iku})/(D_{i.m} + D_{i.u})$$

Where
p = the payor is either Medicaid or the uninsured
m = the payor is Medicaid
u = the payor is self pay

The weighted average market share, by payor, is defined as follows:

$$WM_{kl} = \sum_{.i.} (M_{ikl} \times D_{ik.}) / D_{.k.}$$

Where the sum is constructed across all communities i which send patients to the hospital.

Finally, a note on statistical significance. The market share numbers are proportions, and as such the standard error of M_{ikl} is:

$$S.E\ (M_{ikl}) = \sqrt{M_{ikl}\ X\ (1-M_{ikl})/D_{i.1}}$$

For example, for a locality with 5000 discharges (which characterizes many of the neighborhoods of Boston and Worcester for which results were shown in the text), if 10% of the discharges are Medicaid and the estimate is that hospital k has 15% of the Medicaid market, then the standard error for that estimate is equal to 1.5%. Thus, for most of the larger communities in the state the market share estimates are fairly precise. Further, the estimates of the weighted average market shares are much more precise than any of the individual market share estimates. For a hospital which draws substantial numbers of patients from four or five towns and for which each of these towns account for approximately equal shares of the hospital's discharges, the standard error of the weighted average market share will generally be at least an order of magnitude smaller than the standard error for the individual town market shares.

APPENDIX F

MARKET SHARE FOR BOSTON CITY HOSPITAL USING UNADJUSTED DATA

As was described in Appendix E, the expected payor source at Boston City Hospital was adjusted in order to have the discharge data reflect the known payor mix at the hospital. This appendix presents a comparison of results using adjusted asnd unadjusted data.

As can be seen in Table F-1, Boston City Hospital's market share among the uninsured appears to be lower in the unadjusted data than in the adjusted data, and conversely Boston City Hospital's market share among Medicaid recipients appears to be higher using the unadjusted data. However, the conclusions to be drawn are not affected materially by the adjustment: whether using adjusted or unadjusted data, Boston City Hospital's market share among the uninsured is larger than among Medicaid recipients, and its market share among both the uninsured and Medicaid recipients is substantially higher than among the privately insured. Note further that the "ratio" figure shown in the text table is not affected at all by the Boston City Hospital adjustment, since the ratio is a combined market share of Medicaid recipients and the uninsured.

TABLE F-1

MARKET SHARES FOR BOSTON CITY HOSPITAL, BY COMMUNITY AND TYPE OF INSURANCE, 15 to 64 YEAR OLDS, MEDICAL/SURGICAL SERVICE, ADJUSTED AND UNADJUSTED DATA

COMMUNITY	TYPE OF INSURANCE			
	ADJUSTED DATA		UNADJUSTED DATA	
	Medicaid	Uninsured	Medicaid	Uninsured
South End	62%	74%	66%	69%
Roxbury	39%	63%	44%	57%
North Dorchester	43%	69%	47%	65%
South Dorchester	34%	57%	38%	52%
South Boston	31%	56%	35%	51%
Jamaica Plain	15%	26%	17%	23%
Back Bay	20%	21%	24%	19%
East Boston	7%	18%	9%	16%
Roslindale	9%	17%	11%	15%
Hyde Park	7%	18%	8%	17%
Brighton/Allston	5%	4%	6%	3%
Chelsea	2%	5%	2%	4%
Quincy	6%	9%	7%	7%
Winthrop	2%	7%	3%	6%
Brookline	2%	4%	2%	4%

APPENDIX G

MARKET SHARES, BY PAYOR, FOR ALL HOSPITALS

Table G-1 shows the weighted average market share among Medicaid recipients and the uninsured (the column titled GHSMCDUN), the weighted average market share among the Blue Cross and commercially insured (GHSBXCOM), and the ratio of these five numbers for each hospital in the RSC data set. Ratios greater than 1.0 indicate that the hospital's estimated weighted average market share among the Medicaid and uninsured is higher than its estimated weighted average market share among the privately insured; conversely, ratios less than 1.0 indicate a higher estimated average market share among the privately insured than among Medicaid recipients and the uninsured.

Also shown in Table G-1 is a measure of the extent to which a hospital's payor mix is different from the average payor mix in the communities it serves. The column labeled PHSMCDUN is simply the percentage of a hospital's total discharges in which the expected payor source is Medicaid or self-pay. Using the terminology of Appendix E,

$$PHSMCDUN_k = (D_{.km} + D_{.ku})/D_{.k}.$$

The first column, SRVMCDUN, is the weighted average of the percentage of Medicaid and uninsured discharges from each community that a hospital serves. That is,

$$SRVMCDUN_k = \sum_i \frac{(D_{i.m} + D_{i.u})}{D_{i..}} \times \frac{D_{ik.}}{D_{.k.}}$$

Where the weights are, as before, the percentage of the hospital's total discharges which come from locality i. If a hospital's market shares among Medicaid and the uinsured are equal to its market shares among all other payors, then the proportion of its discharges which are Medicaid or uninsured should reflect the proportion of Medicaid and uninsured in the communities it serves.

For example, the weighted average of the percentage of Medicaid and uninsured in the service area of Boston City Hospital is approximately 50%, while 75% of the hospital's discharges (among these 15-64 in the medical/surgical service) are Medicaid or the uninsured. This is a clear demonstration that part of the reason why Boston City Hospital has a heavy Medicaid and uninsured payor mix is a reflection of the communities it serves, and that part of the reason is that it disproportionately attracts the poor. Note also that the service area percentage of Medicaid recipients and the uninsured is much lower than that of Boston City Hospital's for all the other hospitals in Boston; this reflects the greater reliance of other hospitals on non-inner city neighborhoods.

Finally, it should be clear that all of the data in Table G-1 are simply estimates, and are subject to the caveats noted in the text and in Appendix E. In particular, to the extent that a hospital inaccurately codes the expected payor source variable, the estimates will not accurately reflect the market shares, by payor, for that hospital. Further, if the hospital is large relative to the other hospitals with which it competes, inaccurate coding at one hospital will create ripple effects on the accuracy of the estimates at competing hospitals.

Similar results (not shown) were found for patients admitted with a principal diagnosis of obstetrics/maternity.

TABLE G-1

*** SUMMARY STATISTICS, 15-64, BCH ADJUSTED ***

HSA=1 SUBAREA=1

OBS	RSCNUM	HOSPNAME	SRVMCDUN	PHSMCDUN	DIFTOT	TSTAT	GHSMCDUN	GHSBXCOM	RATIO
1	61	NORTH ADAMS REGIONAL	0.167	0.157	-0.011	-1.53	0.686	0.748	0.92
2	313	BERKSHIRE	0.160	0.156	-0.005	-0.86	0.475	0.505	0.94
3	231	HILLCREST	0.155	0.163	0.008	1.23	0.328	0.334	0.98
4	120	FRANKLIN COUNTY	0.184	0.214	0.030	3.45	0.570	0.524	1.09
5	52	FAIRVIEW	0.156	0.179	0.024	1.96	0.591	0.527	1.12

HSA=1 SUBAREA=2

OBS	RSCNUM	HOSPNAME	SRVMCDUN	PHSMCDUN	DIFTOT	TSTAT	GHSMCDUN	GHSBXCOM	RATIO
6	155	COOLEY/DICKENSON	0.130	0.122	-0.008	-1.64	0.611	0.632	0.97
7	53	FARREN MEMORIAL	0.187	0.187	0.000	0.01	0.298	0.306	0.97
8	226	ATHOL	0.200	0.246	0.045	3.26	0.543	0.443	1.23

HSA=1 SUBAREA=3

OBS	RSCNUM	HOSPNAME	SRVMCDUN	PHSMCDUN	DIFTOT	TSTAT	GHSMCDUN	GHSBXCOM	RATIO
9	149	MERCY	0.189	0.144	-0.045	-9.13	0.165	0.228	0.72
10	181	WING MEMORIAL	0.128	0.115	-0.013	-1.21	0.250	0.278	0.90
11	145	HOLYOKE	0.173	0.162	-0.011	-1.82	0.402	0.411	0.98
12	150	PROVIDENCE	0.169	0.165	-0.004	-0.58	0.182	0.180	1.01
13	76	NOBLE	0.123	0.123	-0.000	-0.04	0.535	0.515	1.04
14	148	MARY LANE	0.151	0.169	0.017	1.65	0.448	0.414	1.08
15	160	LUDLOW	0.137	0.138	0.001	0.06	0.226	0.255	1.12
16	339	BAYSTATE	0.204	0.226	0.022	6.01	0.548	0.484	1.13

HSA=2 SUBAREA=1

OBS	RSCNUM	HOSPNAME	SRVMCDUN	PHSMCDUN	DIFTOT	TSTAT	GHSMCDUN	GHSBXCOM	RATIO
17	298	NASHOBA COMMUNITY	0.106	0.092	-0.014	-2.16	0.415	0.472	0.88
18	34	BURBANK	0.176	0.174	-0.002	-0.26	0.383	0.402	0.95
19	36	HENRY HEYWOOD	0.173	0.168	-0.005	-0.67	0.592	0.569	1.04
20	127	LEOMINSTER	0.163	0.180	0.017	2.19	0.473	0.401	1.18
21	126	CLINTON	0.175	0.234	0.059	4.55	0.579	0.417	1.39

HSA=2 SUBAREA=2

OBS	RSCNUM	HOSPNAME	SRVMCDUN	PHSMCDUN	DIFTOT	TSTAT	GHSMCDUN	GHSBXCOM	RATIO
22	98	FAIRLAWN	0.171	0.107	-0.064	-8.30	0.059	0.087	0.68
23	110	HOLDEN DISTRICT	0.102	0.092	-0.009	-1.06	0.175	0.248	0.71
24	124	WORCESTER MEMORIAL	0.169	0.140	-0.029	-6.23	0.139	0.181	0.77
25	77	WORCESTER HAHNEMANN	0.175	0.148	-0.028	-4.88	0.142	0.160	0.89
26	128	ST VINCENT	0.180	0.161	-0.019	-4.33	0.232	0.256	0.90
27	202	DOCTORS OF WORCESTER	0.207	0.272	0.065	6.53	0.055	0.052	1.06
28	841	U MASS MED CTR	0.153	0.187	0.034	6.34	0.122	0.105	1.16
29	125	WORCESTER CITY	0.249	0.376	0.127	14.03	0.239	0.117	2.04

HSA=2 SUBAREA=3

OBS	RSCNUM	HOSPNAME	SRVMCDUN	PHSMCDUN	DIFTOT	TSTAT	GHSMCDUN	GHSBXCOM	RATIO
30	157	HUBBARD REGIONAL	0.159	0.160	0.001	0.10	0.400	0.421	0.95
31	143	HARRINGTON MEMORIAL	0.180	0.184	0.005	0.58	0.538	0.512	1.05
32	105	MILFORD/WHITINSVILLE	0.120	0.157	0.037	5.39	0.472	0.328	1.44

HSA=3 SUBAREA=1

OBS	RSCNUM	HOSPNAME	SRVMCDUN	PHSMCDUN	DIFTOT	TSTAT	GHSMCDUN	GHSBXCOM	RATIO
33	6	ANNA JAQUES	0.155	0.162	0.006	0.81	0.473	0.454	1.04
34	78	AMESBURY	0.153	0.171	0.018	1.54	0.362	0.306	1.18
35	131	HALE/HAVERHILL	0.155	0.178	0.023	3.19	0.528	0.473	1.24

TABLE G-1 (cont'd)

HSA=3 SUBAREA=2

OBS	RSCNUM	HOSPNAME	SRVMCDUN	PHSMCDUN	DIFTOT	TSTAT	GHSMCDUN	GHSBXCOM	RATIO
36	99	LAWRENCE GENERAL	0.157	0.157	-0.001	-0.10	0.415	0.396	1.05
37	225	BON SECCURS	0.134	0.131	-0.004	-0.66	0.356	0.335	1.07

HSA=3 SUBAREA=3

OBS	RSCNUM	HOSPNAME	SRVMCDUN	PHSMCDUN	DIFTOT	TSTAT	GHSMCDUN	GHSBXCOM	RATIO
38	29	ST JOHNS OF LOWELL	0.149	0.144	-0.005	-0.93	0.273	0.281	0.97
39	63	ST JOSEPHS	0.148	0.151	0.002	0.33	0.231	0.228	1.01
40	40	LOWELL	0.131	0.140	0.010	1.78	0.291	0.273	1.07

HSA=4 SUBAREA=1

OBS	RSCNUM	HOSPNAME	SRVMCDUN	PHSMCDUN	DIFTOT	TSTAT	GHSMCDUN	GHSBXCOM	RATIO
41	43	HUNTINGTON GENERAL	0.219	0.020	-0.200	-36.73	0.001	0.016	0.06
42	31	BROOKLINE	0.192	0.072	-0.121	-17.80	0.010	0.068	0.15
43	335	DANA FARBER	0.151	0.103	-0.048	-5.92	0.014	0.072	0.19
44	59	NEW ENGLAND BAPTIST	0.141	0.061	-0.080	-24.10	0.015	0.070	0.22
45	92	NEW ENGLAND DEACONESS	0.141	0.112	-0.029	-7.82	0.036	0.140	0.26
46	57	HCHP/PARKER HILL	0.221	0.024	-0.196	-58.22	0.002	0.005	0.34
47	91	HAHNEMANN OF BOSTON	0.172	0.075	-0.097	-8.81	0.011	0.028	0.40
48	84	UNIVERSITY	0.238	0.191	-0.047	-9.21	0.036	0.067	0.54
49	139	CHILDRENS	0.194	0.253	0.059	7.24	0.039	0.068	0.57
50	299	NEW ENGLAND MEDICAL CENTER	0.232	0.210	-0.022	-4.43	0.071	0.119	0.60
51	167	MASS EYE AND EAR	0.169	0.172	0.003	0.69	0.054	0.086	0.63
52	3	CARNEY	0.280	0.227	-0.052	-8.82	0.111	0.166	0.67
53	69	BETH ISRAEL	0.214	0.182	-0.032	-7.23	0.067	0.097	0.69
54	65	ST MARGARETS	0.225	0.193	-0.032	-3.03	0.026	0.037	0.69
55	921	BRIGHAM/WOMENS	0.205	0.206	0.000	0.05	0.079	0.099	0.80
56	163	MASS GENERAL	0.181	0.225	0.044	14.10	0.151	0.147	1.03
57	48	FAULKNER	0.179	0.170	-0.010	-1.47	0.180	0.173	1.04
58	13	WINTHROP	0.211	0.220	0.010	0.73	0.233	0.211	1.10
59	85	ST ELIZABETHS	0.189	0.166	-0.023	-4.70	0.169	0.148	1.15

HSA=4 SUBAREA=1

OBS	RSCNUM	HOSPNAME	SRVMCDUN	PHSMCDUN	DIFTOT	TSTAT	GHSMCDUN	GHSBXCOM	RATIO
60	307	BOSTON CITY	0.499	0.762	0.263	54.21	0.467	0.153	3.05

HSA=4 SUBAREA=2

OBS	RSCNUM	HOSPNAME	SRVMCDUN	PHSMCDUN	DIFTOT	TSTAT	GHSMCDUN	GHSBXCOM	RATIO
61	33	LAHEY/BROOKS	0.112	0.057	-0.055	-17.30	0.027	0.104	0.26
62	119	CENTRAL	0.231	0.151	-0.080	-7.65	0.019	0.033	0.58
63	213	SANCTA MARIA	0.154	0.079	-0.074	-12.03	0.052	0.081	0.65
64	71	MOUNT AUBURN	0.150	0.086	-0.064	-16.00	0.104	0.150	0.69
65	94	WINCHESTER ACUTE	0.089	0.063	-0.026	-6.21	0.209	0.250	0.84
66	18	EMERSON	0.091	0.077	-0.015	-3.45	0.414	0.437	0.95
67	1	SOMERVILLE	0.200	0.207	0.006	0.69	0.218	0.198	1.10
68	89	CHOATE/SYMMES	0.097	0.116	0.020	3.99	0.308	0.233	1.32
69	108	CAMBRIDGE CITY	0.250	0.393	0.143	14.79	0.314	0.164	1.91

HSA=4 SUBAREA=3

OBS	RSCNUM	HOSPNAME	SRVMCDUN	PHSMCDUN	DIFTOT	TSTAT	GHSMCDUN	GHSBXCOM	RATIO
70	75	NEWTON/WELLESLEY	0.104	0.068	-0.035	-9.43	0.158	0.192	0.82
71	20	FRAMINGHAM UNION	0.097	0.082	-0.015	-4.52	0.348	0.403	0.86
72	54	GLOVER MEMORIAL	0.084	0.061	-0.023	-3.96	0.258	0.259	1.00
73	103	MARLBOROUGH	0.097	0.112	0.015	2.57	0.464	0.445	1.04
74	39	LEONARD MORSE	0.094	0.106	0.013	2.53	0.354	0.298	1.19
75	67	WALTHAM	0.158	0.194	0.036	5.67	0.510	0.410	1.24

HSA=4 SUBAREA=4

OBS	RSCNUM	HOSPNAME	SRVMCDUN	PHSMCDUN	DIFTOT	TSTAT	GHSMCDUN	GHSBXCOM	RATIO
76	114	NORWOOD	0.098	0.080	-0.018	-4.88	0.322	0.346	0.93

HSA=4 SUBAREA=5

OBS	RSCNUM	HOSPNAME	SRVMCDUN	PHSMCDUN	DIFTOT	TSTAT	GHSMCDUN	GHSBXCOM	RATIO
77	227	MILTON	0.150	0.068	-0.083	-18.14	0.094	0.143	0.66
78	107	SOUTH SHORE	0.110	0.094	-0.016	-4.21	0.318	0.346	0.92
79	151	QUINCY CITY	0.144	0.142	-0.003	-0.48	0.283	0.276	1.02

HSA=5 SUBAREA=1

OBS	RSCNUM	HOSPNAME	SRVMCDUN	PHSMCDUN	DIFTOT	TSTAT	GHSMCDUN	GHSBXCOM	RATIO
80	100	STURDY MEMORIAL	0.126	0.128	0.002	0.36	0.583	0.543	1.07
81	86	ST LUKES OF MIDDLEBORO	0.164	0.179	0.014	1.54	0.472	0.428	1.10
82	22	NORTON	0.162	0.181	0.019	2.57	0.624	0.562	1.11

HSA=5 SUBAREA=2

OBS	RSCNUM	HOSPNAME	SRVMCDUN	PHSMCDUN	DIFTOT	TSTAT	GHSMCDUN	GHSBXCOM	RATIO
83	311	CARDINAL CUSHING	0.139	0.090	-0.049	-11.19	0.145	0.216	0.67
84	82	JORDAN	0.147	0.167	0.020	2.74	0.473	0.427	1.11
85	101	GODDARD MEMORIAL	0.130	0.140	0.011	1.94	0.256	0.218	1.18
86	118	BROCKTON	0.154	0.215	0.062	9.19	0.370	0.265	1.39

HSA=5 SUBAREA=3

OBS	RSCNUM	HOSPNAME	SRVMCDUN	PHSMCDUN	DIFTOT	TSTAT	GHSMCDUN	GHSBXCOM	RATIO
87	260	PARKWOOD/UNION OF NB	0.257	0.211	-0.046	-3.48	0.083	0.132	0.63
88	337	CHARLTON	0.196	0.189	-0.007	-1.42	0.592	0.617	0.96
89	11	ST ANNES OF FALL RIVER	0.201	0.219	0.019	2.13	0.301	0.285	1.06
90	106	TOBEY	0.207	0.247	0.040	3.63	0.470	0.412	1.14
91	10	ST LUKES OF NEW BEDFORD	0.297	0.345	0.049	8.07	0.762	0.614	1.24

HSA=5 SUBAREA=4

OBS	RSCNUM	HOSPNAME	SRVMCDUN	PHSMCDUN	DIFTOT	TSTAT	GHSMCDUN	GHSBXCOM	RATIO
92	44	NANTUCKET	0.135	0.134	-0.001	-0.04	0.562	0.601	0.94
93	239	FALMOUTH	0.153	0.136	-0.017	-2.19	0.471	0.483	0.93
94	42	MARTHAS VINEYARD	0.192	0.224	0.031	1.64	0.594	0.546	1.09
95	135	CAPE COD	0.215	0.293	0.078	9.98	0.707	0.521	1.36

HSA=6 SUBAREA=18

OBS	RSCNUM	HOSPNAME	SRVMCDUN	PHSMCDUN	DIFTOT	TSTAT	GHSMCDUN	GHSBXCOM	RATIO
96	7	BEVERLY	0.127	0.138	0.012	1.20	0.388	0.395	0.98
97	16	ADDISON GILBERT	0.157	0.159	0.003	0.31	0.695	0.694	1.00
98	95	HUNT MEMORIAL	0.111	0.103	-0.009	-1.43	0.333	0.161	2.06

HSA=6 SUBAREA=19

OBS	RSCNUM	HOSPNAME	SRVMCDUN	PHSMCDUN	DIFTOT	TSTAT	GHSMCDUN	GHSBXCOM	RATIO
99	8	UNION OF LYNN	0.177	0.148	-0.028	-4.50	0.174	0.218	0.80
100	14	SALEM	0.138	0.132	-0.007	-1.41	0.392	0.394	0.99
101	4	MARY A ALLEY	0.095	0.090	-0.005	-0.22	0.101	0.094	1.07
102	171	JB THOMAS	0.119	0.116	-0.003	-0.38	0.272	0.250	1.09
103	113	NORTH SHORE CHILDRENS	0.156	0.229	0.073	2.85	0.027	0.024	1.11
104	73	LYNN	0.220	0.266	0.046	6.29	0.428	0.333	1.28

TABLE 3-1 (cont'd)

*** SUMMARY STATISTICS, 15-64, BCH ADJUSTED ***

HSA=6 SUBAREA=20

OBS	RSCNUM	HOSPNAME	SRVMCDUN	PHSMCDUN	DIFTOT	TSTAT	GHSMCDUN	GHSEXCOM	RATIO
105	60	NEW ENGLAND MEMORIAL	0.243	0.115	-0.128	-23.68	0.322	0.828	0.39
106	38	LAWRENCE MEMORIAL	0.139	0.109	-0.030	-4.49	0.171	0.213	0.81
107	46	WHIDDEN MEMORIAL	0.209	0.175	-0.034	-4.62	0.249	0.285	0.87
108	41	MALDEN	0.162	0.145	-0.018	-2.77	0.183	0.200	0.92
109	58	MELROSE/WAKEFIELD	0.112	0.097	-0.015	-3.20	0.283	0.292	0.97

Appendix H

An Overview of the Massachusetts Hospital Payment System

In order to understand the effects of Chapter 372 on access to care for the poor, one must have an understanding of the complex hospital payment system in Massachusetts that is referred to as Chapter 372. To facilitate this understanding, section H.1 of this chapter presents a description and brief history of the Massachusetts hospital payment system from which Chapter 372 evolved. The Chapter 372 system is then described in section H.2 while the legislative amendments that occurred during the first three years of the Chapter 372 are outlined in section H.3. The chapter concludes with a description of the Chapter 372 system as it currently exists, i.e. as amended by the provisions of Chapter 574 of the Acts of 1985. In chapter 2 of this report, the specific features of the Chapter 372 system regarding bad debt and free care and Medicaid payments are detailed and discussed.

H.1 A DESCRIPTION AND BRIEF HISTORY OF THE SYSTEM PRIOR TO CHAPTER 372

In contrast to the all payor concept that was the core of original Chapter 372 legislation, the key characteristic of the hospital payment system prior to Chapter 372 was that each of the major payors had its own method of calculating its payments to hospitals. This "system" produced conflicting incentives for hospitals and was generally held responsible for the seemingly uncontrolled rate of increase in hospital costs in Massachusetts. A brief description and history of major features of each of the four major payors (Medicare, Medicaid, Charge Payers, and Blue Cross) follows.

Medicare

In Massachusetts, as elsewhere, Medicare is the dominant payor of hospital services representing approximately 40% of all hospital services. Prior to the Chapter 372 system, Medicare utilized its traditional cost based reimbursement principles to pay for hospital services in Massachusetts. Under this system, hospitals received reimbursement for the acutal costs of providing services to Medicare patients. Cost based reimbursement was a particularly effective tool for expanding hospital capacity and access to services for Medicare patients, the primary policy goals when Medicare began in 1966. By the early 1980's, the "open checkbook" nature of cost based reimbursement with its strong incentives to increase costs had become the dominant issue regarding Medicare in Massachusetts as well as nationally.

Medicaid

For the first ten years of the Medicaid program, Massachusetts had followed the cost based reimbursement principles of Medicare as its method of payment for hospital services for Medicaid patients. In 1974, however, the Commonwealth applied for and received a waiver from the Medicare cost based reimbursement principles in order to implement a prospectively based payment system for Medicaid patients. Under this system, which was in effect from 1976 until Chapter 372 began in October, 1982, Medicaid paid a prospectively determined, hospital specific per diem rate for inpatient hospital services and a hospital specific percentage of charge rate for outpatient services. The per diem rate was all inclusive, i.e. it included both routine services and ancillary services. The per diem was calculated in advance of each hospital fiscal year by inflating the hospital's base year costs to rate year levels through the use of a industry-wide inflation factor and then dividing the projected rate year costs by the base year number of days. The outpatient percentage of charge rates were determined by dividing base year outpatient costs by base year outpatient gross revenue.

In contrast to cost based reimbursement, the prospectively based payment system for Medicaid patients provided a financial incentive to restrain cost increases. Medicaid, however, only represents about 10% of hospital services in Massachusetts. and thus the incentive to restrain cost increases was relatively weak. In addition, the per diem approach provides a financial incentive to hospitals to increase the number of days.

Charge Payers

In response to the rapid increases in hospital costs and charges in the early and mid 1970's, Massachusetts was one of the first (and one of the few) states to establish a charge control program to regulate hospital charges in 1975. Commonly known as Chapter 409 (after the state statute of 1976, which replaced the original emergency statute of 1975), the Rate Setting Commission's charge control program was designed to control the rate of increase in charges that hospitals charged to commercially insured and self pay patients. Chapter 409 was a prospective system that determined the amount of gross patient service revenue (GPSR) that a hospital would have to generate in order to meet its projected rate year costs. The rate year costs were projected from a hospital's actual base year costs as adjusted for base year-to-rate year inflation, volume and extraordinary changes. A hospital was required to structure its charges in a manner so that the rate year GPSR would not be exceeded. Due to its limited application (charge payers utilize approximately 25% of hospital service), its lack of a revenue compliance provision and a number of other imperfections, the Chapter 409 program was not very effective in controlling hospital charges. These problems with the program resulted in legislative caps on charge increases for FY'81 and FY'82 while more fundamental changes to the program and the hospital payment system were studied by a legislatively mandated Joint Legislative Executive Commission on Hospital Reimbursement.

Blue Cross

Historically, Blue Cross of Massachusetts, which pays for approximately 25% of all hospital services, had paid hospitals using cost based reimbursement principles pursuant to contracts it maintained with Massachusetts hospitals. Conceptually, Blue Cross' payment methodology was identical to Medicare's payment methodology and thereby incorporated the same incentives and disincentives discussed above in the Medicare section. In response to the actions of the state's Rate Setting Commission, which must approve the contracts that Blue Cross enters into with hospitals, Blue Cross and the hospitals switched from a cost based reimbursement contract to a largely prospective hospital specific budget based contract beginning with fiscal year 1982. Under the Maximum Allowable Cost (or MAC) concept that was incorporated in the new contract, Hospital Agreement-29 (or HA-29), Blue Cross paid a hospital its share (as measured by its share of total hospital charges) of a hospital's budgeted cost for a fiscal year. The budgeted cost was computed by formulaically adjusting the hospital's actual costs in the fixed base year of 1981 for base year to rate year changes due to inflation and volume. In addition, Blue Cross paid a hospital its share of a hospital's acutal costs for capital and uncompensated care costs and for extraordinary costs known as exceptions (recurring exception costs were eventually rolled into the base). The key features of HA-29 were its risk/reward incentives for hospitals to control costs and specific financial incentives incorporated in the volume adjustments to encourage

some specific activity by hospitals (reductions in length of stay, reductions in inpatient ancillaries, increases in ambulatory surgery, etc).

Summary

As this brief and simplified description of the Massachusetts hospital payment system prior to Chapter 372 indicates, the hospital payment "system" was not a system but rather an amalgam of conflicting payment schemes and was far from simple. With the switch to a largely prospective contract for Blue Cross beginning with FY' 82, however, the momentum for a substantive change was great.

H.2 THE INITIAL CHAPTER 372 HOSPITAL PAYMENT SYSTEM

Upon the failure of the Joint Legislative Executive Commission on Hospital Reimbursement to produce a legislative proposal to reform the hospital payment system in Massachusetts, a number of interested parties engaged in negotiations to develop a legislative overhaul of the hospital payment system. These negotiations were sponsored by representatives of the Massachusetts Business Roundtable and included representatives of state government, the hospital industry, Blue Cross, commercial insurors, the Medical Society and organized labor. The negotiations produced a legislative proposal which was adopted by the legislature and signed into law as Chapter 372 of the Acts of 1982 on August 10, 1982 to be effective October 1, 1982. The parties that negotiated the bill became to be known as the Health Care Coalition and continued to meet on a regular basis to review the implementation of the bill and to negotiate refinements and adjustments to Chapter 372.

Although the Massachusetts hospital payment system is commonly referred to as the Chapter 372 system, Chapter 372 itself was just one of four major pieces that made up the initial Chapter 372 system. The other major components of the Chapter 372 system were the Medicare waiver, which authorized Medicare's participation in the all payor scheme, the related Medicaid waiver, and HA-29, the contract between Blue Cross and acute hospitals in Massachusetts. As noted above, Chapter 372 was signed in August, 1982, but its all payor provisions were

contingent upon the approval of the Medicare waiver application submitted by the Massachusetts Hospital Association (MHA) that was pending at the time the bill was signed. In addition, federal approval of a Medicaid waiver was necessary. Formal approval of these waivers was received on September 30, 1982 and the bill became effective October 1, 1982.

A Description of the Initial Chapter 372 Payment System

The Chapter 372 hospital payment system that began on October 1, 1982, encompassed all 108 acute care hospitals in Massachusetts. (An acute care hospital was defined as a hospital which had a majority of medical/surgical, pediatric, obstetric and maternity beds). In FY'83, these hospitals served approximately 950,000 inpatients a year, and generated approximately $4,000,000,000 in gross revenues.

The initial Chapter 372 legislation provided that the system would remain in effect for six hospital fiscal years (FY'83 through FY'88) provided that the requisite Medicare waiver continued*. Since HA-29 was only a three-year contract which began in FY'82 and thereby would be in effect only through FY'

*FY' 84 through FY' 89 for hospitals with fiscal years beginning on July 1, with the exception that the Medicaid changes were effective October 1, 1982 regardless of hospital fiscal year. For ease of presentation, the lag for hospitals with 7/1 fiscal years will be ignored in this discussion.

84, the legislation also specified some requirements for the successor agreement (s) to HA-29 to be effective from FY'85 on. These requirements, commonly referred to as the Section 51 provisions, were designed to protect both Blue Cross and the charge payers. For the private payers it is usually helpful to think of Chapter 372 as having two periods with the first or pre-Section 51 period, covering FY'83 and FY'84 (the remaining two years of HA-29), and the second, or Section 51 period, covering FY'85 on. (The Section 51 provisions were particularly important regarding the payment for uncompensated care. This effect is discussed in detail in Chapter 2 of this report.)

The major features of the initial Chapter 372 payment system were as follows:

- o All payer concept - All four major payers participated in the system with the result that the financial incentives inherent in the payment scheme were consistent.
- o Use of revenue cap approach including revenue compliance - The cost control objectives were to be realized through a cap on the gross revenues at each hospital which was enforced through revenue monitoring and compliance provisions.
- o Use of a largely prospective payment ment approach - As the revenue caps at each hospital were derived from the basis of payment derived from each hospital's HA-29 contract, the system was predominantly prospective. It did, however, incorporate a number of retrospective adjustments as well as actual cost pass through for capital, uncompensated care and a few other costs.
- o Productivity factor - To reduce system costs a series of productivity factors were applied to the budgeted costs that would otherwise have been allowed. This was a major cost control feature and

	would have reduced costs by approximately 7.5% over the original six-year term of the bill. (The productivity factors were implemented in a different manner for public and private payers but would have produced similar savings.)
o Increased equity between Blue Cross and the charge payers	- The differential, i.e. the percentage amount that charge payers pay more than Blue Cross, was reduced and a system established to determine an appropriate differential
o Explicit recognition of payment of uncompensated care	- The costs of uncompensated care were explicitly recognized as a private sector liability beginning with the implementation of Section 51 in FY' 85.
o Protection of cost shifting from public to private payers	- Beginning with the implementation of Section 51 in FY' 85, private sector liability was expressly limited to costs associated with private sector patients. (including bad debt and free care costs).

Although the initial Chapter 372 hospital payment system was an all payer system, it is important to note that differences among the relative rates of payment of the major payers remained. The unifying feature of Chapter 372 was that the rates of payment of all four major payers were derived from the basis of payment calculated pursuant to HA-29 for Blue Cross payment purposes. A brief description of these variations on the HA-29 theme follows.

Medicare

Under the terms of the three year waiver granted to MHA by the Health Care Financing Administration (HCFA), Medicare adopted the use of HA-29 with some adjustments to determine Medicare liability. Compared to Blue Cross, the major differences were 1) the lack of recognition by Medicare of certain costs that Blue Cross recognized (price level depreciation and bad debt), 2) a cap on the amount of free care recognized, and 3) use of the normal Medicare methodology to pay for malpractice expenses, renal dialysis and home health services rather than the HA-29 method. In addition, the series of productivity factors began in FY' 83 for Medicare rather than in FY' 85 for Blue Cross.

Medicaid

Under the provisions of Chapter 372 and the associated Medicaid waiver granted by HCFA, the relative difference between the FY' 82 Medicaid rate of payment and the Blue Cross FY' 82 rate of payment (net of price level depreciation, bad debt and free care) was frozen for the term of Chapter 372. Free care

was recognized by Medicaid, however, for hospitals that served a disproportionate share of low income patients. In addition, like Medicare, the series of productivity factors began in FY' 83 for Medicaid.

Charge Payers

For charge payers, rates of payment are the individual unit charges which are effectively restrained by the cap on gross patient service revenue (GPSR). For FY' 83, the first year of Chapter 372, GPSR was derived from the approved FY' 82 GPSR (which had been determined by the Chapter 409 program) by multiplying the FY' 82 approved GPSR by the FY' 82-83 rate of increase in the Blue Cross basis of payment less 1.4%. (The 1.4% was a negotiated number which was intended to immediately reduce the extent of the differential that had built up between charges and Blue Cross rates of payment.) For FY' 84, the FY' 83 approved GPSR was simply inflated by the rate of increase in FY' 83-84 Blue Cross basis of payment.

As noted above, Section 51 became effective in FY' 85. Section 51 completely changed the manner in which GPSR was derived. The effect of Section 51 and related sections was to ensure that the sum of payments by Blue Cross payment and net charge-payor payments would cover the costs of providing care to private sector patients (including bad debt and free care). FY'85 was also the starting point for productivity factors for Blue Cross and charge payors.

Blue Cross

For the first two years of Chapter 372, Blue Cross continued to pay hospitals under the provisions of HA-29 as described in Section H.1 above. (Since HA-29 preceded Chapter 372, no changes that would be effective during the term of HA-29 were permitted). Beginning in FY' 85, however, the basis of payment under HA-30 was subject to the provisions of Section 51 described above and the series of productivity factors began.

H.3 LEGISLATIVE AMENDMENTS TO CHAPTER 372 DURING ITS ALL PAYOR PHASE

As the previous section indicated, the Chapter 372 hospital payment system was (and is) a complex one. Not surprisingly, a number of errors were discovered in the initial legislation once Chapter 372 was implemented. In addition, several refinements to the initial legislation were deemed desirable. During its first three years, the all payer phase, three substantive amendments were made to either correct or refine the initial legislation. These bills were Chapter 389 of the Acts of 1983, Chapter 183 of the Acts of 1984 and Chapter 347 of the Acts of 1984. The major effects of each of these bills are summarized below.

Chapter 389 of the Acts of 1983

Once Chapter 372 was implemented a significant flaw was discovered. The Medicaid payment formula in the original Chapter 372 language unintentionally provided a financial incentive to increase the number of administratively necessary days (AND), i.e. nursing home level patients who were in hospitals awaiting placements into nursing homes. The technical correction of this error was the driving force for the statute. The following additional corrections and refinements were included in the legislation:

- Exemption of exceptions recognized under HA-29 from the productivity factors
- An adjustment to approved FY'82 GPSR to reflect actual volume during FY'82

- The addition of two representatives from the advocacy community to the Differential Study Commission
- A technical correction to the Medicaid rate of payment regarding the treatment of deactivated beds in fiscal year 1982
- Authorization for an adjustment to Medicaid rates of payment under certain circumstances
- Affirmation of the ability of health maintenance organizations to negotiate discounts from charges directly with hospitals

Chapter 183 of the Acts of 1984

Chapter 183 amended the cap on private sector liability that was incorporated in Section 51 in the initial legislation. Subject to HCFA approval, it also limited an adjustment in Medicaid oupatient rates to years prior to Chapter 372 and specified one component of the method of calculating the inclusion of free care for disproportionate hospitals in greater detail.

Chapter 347 of the Acts of 1984

An error in the Medicaid formula was once again the prime motivator for this legislative amendment sponsored by the Health Care Coalition. The error affected Medicaid payments beginning FY'84 and resulted in reduced Medicaid payments to hospitals. The legislation partially compensated for the reduced payments in FY' 84, compensated for almost all of the estimated shortfall in FY'85 and fully corrected the error effective FY'86. A significant refinement in the Medicaid formula to provide a

financial incentive to provide to serve to additional Medicaid recipients as well as a financial sanction for reducing services to Medicaid patients) was also included in this legislation. Other provisions of the bill mandated the Rate Setting Commission to establish criteria regarding hospitals' credit and collection policies, required hospitals to provide access to services to General Relief (GR) recipients, established a GR Study Commission and established a revised hardship relief process for hospitals through the formation of a Hospital Advisory and Financial Assistance Board. All of the provisions of Chapter 347, however, were made contingent upon the receipt of HCFA approval of the Medicaid changes. This approval was not received until January of 1986, i.e. after the passage of the next amendment to Chapter 372, Chapter 574 of the Acts of 1985.

H.4 THE CURRENT CHAPTER 372 HOSPITAL PAYMENT SYSTEM OF 1985

The most significant changes to the Chapter 372 hospital payment system occurred with the passage of Chapter 574 of the Acts of 1985 in December, 1985. Incorporating the desire of the hospitals to join the DRG based Prospective Payment System for Medicare, the primary purpose of this Health Care Coalition sponsored legislation was to make the adjustments necessary to continue the Chapter 372 payment system for Blue Cross, charge payors and Medicaid. In addition, the legislation made significant refinements in the way in which hospitals receive payment for bad debt and free care and it establishes a state monitoring and advocacy system intended to protect the elderly from negative consequences of movement to the DRG system.

Most notably, Chapter 574:

- Creates of a methodology which funds bad debt and free care through the hospital charge structure so that each hospital's charges reflects the statewide average for uncompensated care. Approximately 60% of all acute hospitals increased their charges and 40% decreased their charges.
- Charges the Rate Setting Commission with determining each hospital's liability to the pool and establishes Blue Cross as the Commission's administrative agent.
- Establishes controls on cost increases to Blue Cross, commercial insurors, self-payors and Medicaid that could result from the new Medicare payment system. Moving away from an all-payor sytem without such protection could result in cost shifting.

- Terminates Chapter 372 in 1987 instead of 1988 as originally intended so that the law will coincide with the expiration of HA-30 and to provide time for the speical commission to develop a successor to Chapter 372.

- Prohibits hospitals from discriminating against Medicare patients in the areas of admissions, discharges and quality of care. This concern results from the uncertain impact that DRGs will have on the quality of care for elderly Medicare beneficiaries. A Medicare patient's rights to appeal treatment decisions to federally-authorized quality control organizations is re-affirmed by the bill.

- Establishes an Advocacy Office within DPH to mediate patient/hospital disputes in response to complaints by the elderly and empowers the Department of Public Health to assess the impact of DRG payments on elderly care and report its findings to the legislation by March, 1987. DPH can refer unresolved complaints to the Attorney General.

- Reaffirms the right of HMOs to contract with hospitals for reduced prices.

- Establishes a program, subject to appropriation of funds by the legislature, that assists community health centers that care for uninsured individuals. The Rate Setting Commission will work with the Massachusetts League of Neighborhood Health Centers to determine a methodology for distributing such funds and develop guidelines for credit and collection policies in health centers.

- Creates an eleven member special commission that will make recommendations by June, 1986 on long term solutions for the financing and delivery of health care. It also creates an advisory committee to make recommendations to the study group on the needs of the uninsured and underinsured.

- Requires the Commissioner of Insurance to submit to the legislature a status report on preferred provider organizations.

- Create a number of contingency plans, (sometimes called "triggers"), in case the federal government does not appove the state's use of federal dollars to pay Medicaid's portion of uncompensated care.

With this legislation and the associated expiration of the Medicare Waiver, the Massachusetts hospital payment system evolved from an all payor system to a system which had two payment schemes--PPS for Medicare and Chapter 372 methodology for the "non Medicare" payors. The two payment schemes share many similar incentives, but also have some significant differences. This system will apply during FY'86 and FY'87, the remaining two years on the Blue Cross-hospital HA-30 contract.